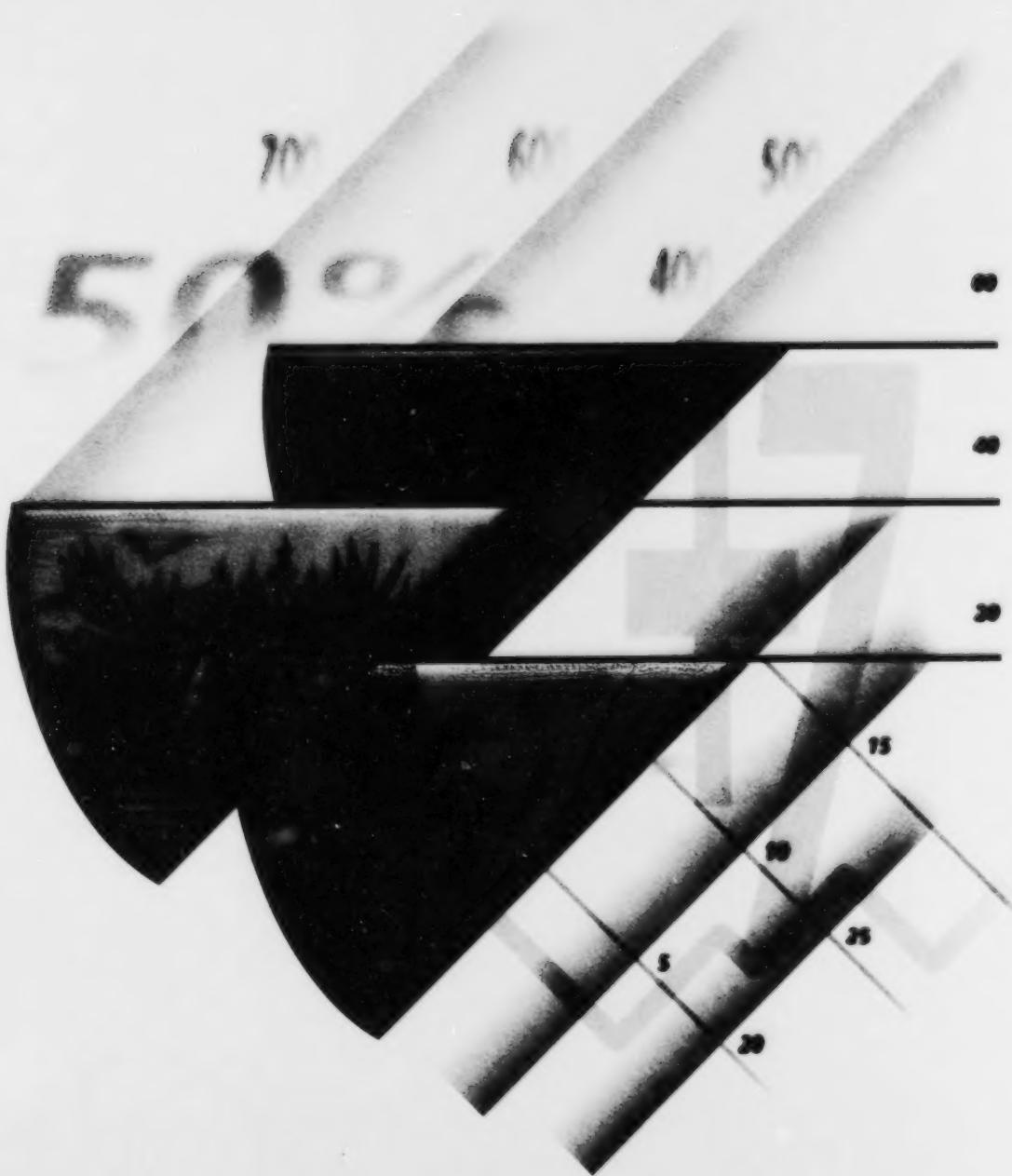


# *The Importance of Nature to Canadians: The Economic Significance of Nature-related Activities*



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© Minister of Public Works and Government Services Canada 2000  
Cat. No. En 47-312/2000E  
ISBN 0-662-28400-3

Design: Acart Design, Ottawa

**Canadian Cataloguing in Publication Data**

Federal-Provincial-Territorial Task Force on the Importance of Nature to Canadians

The importance of nature to Canadians: the economic significance of nature-related  
activities

Issued also in French under title: L'importance de la nature pour les Canadiens :  
les avantages économiques des activités reliées à la nature.

Issued also on the Internet.

Includes bibliographical references.

ISBN 0-662-28400-3

Cat. No. En 47-312/2000E

1. Natural areas — Economic aspects — Canada.
2. National parks and reserves — Economic aspects — Canada.
3. Wilderness areas — Economic aspects — Canada.
4. Economic surveys — Canada.

I. Canada. Environment Canada.  
II. Title.



Environment  
Canada

Environnement  
Canada

# *The Importance of Nature to Canadians: The Economic Significance of Nature-Related Activities*

*Prepared by the*

**Federal-Provincial-Territorial Task Force  
on the Importance of Nature to Canadians**

## ACKNOWLEDGEMENTS

This report was a collaborative effort involving the valuable contribution and assistance of many individuals. It was written by Elaine DuWors and Michel Villeneuve. The analyses were carried out by Michel Villeneuve with the assistance of David Burke. The Federal-Provincial-Territorial Task Force on the Importance of Nature to Canadians exercised significant guidance and provided comments and substantive input regarding the analysis and the report itself. In particular, Douglass Legg

developed a method for analyzing expenditure data, Tim Williamson consulted with the Task Force on the concept of economic value, and Roger Reid and Pierre Bouchard clarified the interpretation and presentation of results.

The Task Force would like to express their gratitude to Fern L. Filion and André Jacquemot for their guidance and expertise in the development of the 1996 Survey on the Importance of Nature to Canadians and this report.

They would also like to thank the following persons who have been instrumental in the successful completion of the report: Ronald Rioux, Marc Hamel, Jesse Coull (Statistics Canada), Agathe Galipeau (Environment Canada), Sylvia Cabrera, Richard Aiken (U.S. Fish and Wildlife Service), and Sherry Graves-Morrison.

### **Federal-Provincial-Territorial Task Force on the Importance of Nature to Canadians**

- Luis Leigh (Chair), Elaine DuWors, Michel Villeneuve, Environment Canada
- Alistair Bath, Memorial University of Newfoundland
- Pierre Bouchard, Ministère de l'Environnement et de la Faune du Québec
- Peter Boxall, University of Alberta, Dept. of Rural Economy
- Douglass Legg, Ontario Ministry of Natural Resources
- Scott Meis, Canadian Tourism Commission
- Roger Reid, British Columbia Ministry of Environment, Land and Parks
- Tim Williamson, Canadian Forest Service, Northwest Region

This report presents results on the economic significance of nature-related activities based on the findings of the Survey on the Importance of Nature to Canadians (the Nature Survey). This is the second report in a series based on survey results. A partnership of 16 agencies in the governments of Canada, the 10 provinces, and the Yukon sponsored the Nature Survey.<sup>1</sup> It was conducted by Statistics Canada among a representative sample of approximately 87,000 Canadians 15 years of age and over. The report also presents results on spending by U.S. visitors to Canada for nature-related activities derived from a U.S. survey.

The surveys show that Canadian residents and U.S. visitors spent \$11.7 billion on nature-related activities in Canada during 1996. The report examines the economic impacts of these expenditures for Canada, the provinces and the Yukon, in terms of contributions to GDP, jobs sustained, and tax revenues. It also reports the economic value of nature-related activities to Canadians.

Strategic knowledge of the economic significance of Canada's natural assets is important for influencing decision-makers to factor economic considerations into environmental regulations and policies. It is also important for encouraging decision-makers to incorporate environmental considerations into the development and implementation of economic policies.

---

### Expenditures on nature-related activities

In 1996, 20 million Canadians spent \$11.0 billion in Canada to pursue nature-related activities on special trips or around their homes. More specifically:

- Of the total expenditures, 28.4 percent was spent on equipment used primarily for nature-related activities, 23.5 percent was spent on transportation, 18.4 percent on food, 12.7 percent on accommodation and

5.8 percent on other items such as entry fees. The remaining 11.2 percent was spent on other nature-related activities.

- Canadians spent \$7.2 billion on outdoor activities in natural areas,<sup>2</sup> \$1.3 billion for wildlife viewing, \$1.9 billion for recreational fishing, over \$800 million for hunting and \$1.2 billion for other nature-related

activities including contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.<sup>3</sup>

A survey by the U.S. Fish and Wildlife Service estimated that U.S. visitors to Canada for two nature-related activities — wildlife viewing and recreational fishing — spent over \$700 million. The total would be even higher if it were to include spending by U.S. visitors in Canada for other nature-related activities, such as sightseeing, camping, boating and hiking.

---

<sup>1</sup> Due to the vast size of the Northwest Territories and its sparse population, it has been found to be prohibitively expensive to reach this population for surveys. In the case of the Nature Survey, it was determined to be well beyond the ability of sponsors to afford including the Northwest Territories.

<sup>2</sup> "Outdoor activities in natural areas" were defined as trips taken to natural areas such as forests, water bodies and other areas for the main reason of participating in one or more of the following activities: sightseeing in natural areas, photographing in natural areas, gathering nuts, berries and firewood, picnicking, camping, swimming/beach activity, canoeing/kayaking/sailing, power boating, hiking/backpacking, climbing, horseback riding, cycling in natural areas, off-road vehicle use, downhill skiing, x-country skiing/snowshoeing, snowmobiling and relaxing in an outdoor setting. Participants also indicated whether wildlife viewing, recreational fishing or hunting were secondary reasons for the trips.

<sup>3</sup> The total adds to more than \$11.0 billion for reasons explained in Section 2.1.

---

## **Economic impacts of expenditures on nature-related activities**

The enjoyment provided by nature has significant impacts on the national, provincial and territorial economies. At the national level, the \$11.7 billion spent in Canada on nature-related activities by Canadians and U.S. visitors led to contributions of \$17.3 billion to gross business production and \$12.1 billion to Canada's gross domestic product (GDP). These expenditures also led to contributions of \$5.9 billion in personal income generated by the 215,000 jobs that were sustained by this economic activity, and \$5.4 billion in government revenue from taxes. The report presents a breakdown by province and territory of the above estimates.

---

## **Economic value of nature-related activities**

Participants indicated that they would have spent an additional \$2.0 billion before deciding not to participate in nature-related activities in 1996. This represents the economic value that participants place on nature-related activities. In the context of sustainable development, the effective management of Canada's natural wealth will allow the annual benefits of \$2.0 billion or more from nature-related activities to be provided to Canadians in perpetuity.

benefits provided by nature-related activities could serve as a powerful tool to influence decision-makers to achieve sustainable development in at least three ways — namely, by 1) developing new economic indicators of sustainability to improve decision-making, 2) enhancing public recognition of the important economic contributions of Canada's ecosystems and biodiversity in the national income accounts and 3) helping to demonstrate the significant returns to investments in actions to sustain Canada's natural assets by providing measures of the economic benefits that may be lost if these assets are degraded.

---

## **Policy implications and future directions**

The Nature Survey demonstrates the magnitude of the benefits that the enjoyment of Canada's natural wealth contributes to the people and the economy. Information on the economic

Periodic updating of the Survey on the Importance of Nature to Canadians is needed to contribute to valuing Canada's natural wealth and to monitor economic indicators of the sustainability of these assets in the coming years.

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## PREFACE

This project represents the combined efforts and expertise of 16 agencies in the governments of Canada, the 10 provinces and the Yukon.

- Environment Canada
  - Economic and Regulatory Affairs Directorate
  - Canadian Wildlife Service
- Statistics Canada
  - Labour and Household Surveys Branch
  - System of National Accounts Branch
- Canadian Forest Service, Natural Resources Canada

- Canadian Tourism Commission
- Newfoundland Department of Forest Resources and Agrifood
- Prince Edward Island Department of Fisheries and Environment
- Nova Scotia Department of Natural Resources
- New Brunswick Department of Natural Resources and Energy
- Quebec Ministère de l'Environnement et de la Faune
- Ontario Ministry of Natural Resources
- Manitoba Department of Natural Resources
- Saskatchewan Department of Environment and Resource Management
- Alberta Department of Environmental Protection
- British Columbia Ministry of Environment, Lands and Parks
- Yukon Department of Renewable Resources
- Parks Canada, Department of Canadian Heritage

The unique cooperative partnership of the agencies involved has enabled the gathering of information useful to the partners and other researchers and managers. However, the ultimate beneficiaries of the study will be Canada's natural areas and the wildlife and fish that live in these areas.

## 1. INTRODUCTION

The value of nature is infinite: we could not survive without it. Natural wealth contributes to human welfare by meeting a wide spectrum of human needs ranging from very tangible subsistence to highly intangible psychological needs. Canadians depend on natural ecosystems for providing many valued resources and services. Understanding the interdependence of humans and nature can help guide policies for sustainable development in ensuring the preservation of nature, ecosystem health, and human welfare.

However, natural wealth — the value of the goods and services that nature provides to people — is not fully reflected in commercial markets or adequately quantified in terms comparable with produced assets. A consequence of this is that natural wealth is often given too little weight in policy decisions, resulting in potential harm to current and future human welfare. Efforts to redress this situation by monetizing natural wealth and employing this information in sustainable development policy making are underway on a number of fronts.<sup>4</sup>

This report contributes to these efforts by increasing our understanding of how natural assets, such as wildlife, forests, water and protected areas, bring significant economic benefits to the people and to the economy of Canada. Its purpose is to provide insight into two fundamental questions. One question is concerned with how much value (direct benefits) people place on their use of nature for tourism and recreational activities. The other question is concerned with the economic activity (indirect benefits) generated by the sustainable use of

natural assets in these activities. The report illustrates the magnitude of these economic benefits, based on analyses of the 1996 Survey on the Importance of Nature to Canadians.

Information on these benefits could serve as a powerful tool to influence federal, provincial, territorial and local decision-makers to achieve sustainable development in at least three ways — namely, by 1) developing new economic indicators of sustainability to improve decision-making, 2) enhancing public recognition of the important social and economic contributions of Canada's ecosystems and biodiversity in the national income accounts and 3) helping to demonstrate the significant returns to investments in actions to sustain Canada's natural assets by providing measures of the economic benefits that may be lost if these assets are degraded.

### Background

The Survey on the Importance of Nature to Canadians is the result of a partnership of 16 federal, provincial and territorial government agencies responsible for wildlife, water, forestry, tourism and protected areas, led by Environment Canada. Statistics Canada conducted the survey among a sample of approximately 87,000 Canadians aged 15 years and over on behalf of the partnership. A Task Force represented the federal, provincial and territorial partners in overseeing the design, conduct, analysis and reporting of the survey.

The objective of the survey was to collect basic, accurate and reliable socio-economic information on the importance of nature to Canadians. This information is essential to meet the diverse policy and program needs of the sponsoring agencies in fostering sustainable development. The survey focussed on people's behaviour. It included questions on participation in nature-related activities, trips taken for these activities, levels of commitment of time and money, and the locations at which these activities took place.

The 1996 survey was designed to update and enhance information from surveys co-sponsored by similar partnerships in 1981, 1987 and 1991 under the name "Survey on the Importance of Wildlife to Canadians." The Nature Survey included questions on fish- and wildlife-related activities similar to those in previous surveys. It was expanded to include a new set of questions on outdoor activities in natural areas such as camping and boating, among others.

A new dimension was introduced by including questions on the locations at which various nature-related activities took place. This will allow new policy and program needs to be met by enabling analyses of results by regions of interest to survey partners, such as ecozones, watersheds and sub-provincial management regions, among many others.

This report is the second in a series on 1996 survey results under the generic title "The Importance of Nature to Canadians". It was jointly written by members of the Federal-Provincial-Territorial Task Force on the Importance of Nature to Canadians.

<sup>4</sup> For example, see reference 1 in Appendix III.

Information on the background of the survey and an overview of key findings are included in an earlier report entitled "The Importance of Nature to Canadians: Survey Highlights". Survey design, questionnaire content, and the statistical reliability of survey results are covered in a report entitled "The Importance of Nature to Canadians: A User's Guide to the Methodology of a 1996 Survey". These publications on the 1996 results and of earlier reports on the 1981, 1987 and 1991 survey findings are listed in Appendix III, references 2 to 12. Copies may be obtained from the authors of this report or from the agencies sponsoring the survey. The 1991 and 1996 reports are also available on the Nature Survey website: <http://www.ec.gc.ca/nature/survey.htm>.

## Structure and scope of the report

The report is presented in three parts. Part A, Chapter 2 highlights survey results on the expenditures that Canadians made in Canada to take part in a number of different nature-related activities during 1996. Chapter 3 introduces the key concepts used in determining the economic significance of nature, and Chapter 4 examines the diverse economic impacts (indirect benefits) that result from the use of natural assets in recreational activities. The magnitude of the economic value (direct benefits) of nature-related activities for participants is revealed in Chapter 5. Chapters 6 to 16 provide executive overviews of the economic benefits of nature-related activities for each of the 10 provinces and the Yukon.

Part B examines the flow of expenditures on selected activities (wildlife viewing and recreational fishing) between Canada and the United States (Chapter 17), and provides new information on the impact of spending on nature-related activities by Canadians and U.S. visitors on the Canadian economy (Chapter 18).

Part C presents several conclusions that emerge from the report and advances a number of strategic implications for the sustainable management of Canada's natural wealth (Chapter 19). The final chapter (Chapter 20) proposes future directions for the analysis of the growing database on the economic significance of nature-related activities.

In this report, the statistical reliability of all estimates in the tables and figures has been assessed by examining the sampling variability of each estimate. Most estimates meet Statistics Canada criteria for a sufficiently low level of variability to be used with confidence. In a number of cases, the variability of certain estimates is higher than for others. In some cases, estimates with high variability were collapsed to permit the use of the combined estimate. In a few cases, the variability is too high to be considered reliable, and is not reported.

The following symbols are used in the tables and figures to indicate the quality level of estimates. These symbols should be interpreted as follows:

- \* The sampling variability of this estimate is slightly higher than for other groups for reasons such as the small sample size on which the estimate is based and the degree of variation in the distribution of the characteristic measured.
- ] The sampling variability of the estimate for one or more of these subgroups is too high for the data to be reported reliably; thus, the combined estimate for the subgroups is reported.
- ... The sampling variability of this estimate is too high to be considered reliable for reasons such as the small sample size on which the estimate is based and the high degree of variation in the distribution of the characteristic measured.

The symbols apply both to the estimate and to percentages and averages based on the estimates in tables, figures and text.

## PART A

# NATURE-RELATED ACTIVITIES BY CANADIANS IN CANADA

## 2. EXPENDITURES ON NATURE-RELATED ACTIVITIES BY CANADIANS

In 1996, residents of Canada reported spending \$11.0 billion on a variety of nature-related activities within Canada. They made trip-related expenditures for transportation, accommodation and food. They also purchased equipment, supplies and other items needed to pursue nature-related activities, such as camping gear, outdoor clothing, boats, trucks, hunting and fishing equipment and supplies, license and entry fees, cameras and binoculars. Other examples of expenditures for nature-related activities are membership fees or donations to nature-related organizations, costs to maintain land for conservation and purchase of feeders and feed for wildlife. The questionnaire was designed so that expenditures over the 12-month period of 1996 would be reported only if they were made *mainly* for nature-related activities. A further description of expenditures that were recorded in the survey is provided in Appendix I.

In this chapter, the total and average expenditures by participants in a number of nature-related activities are examined. These include expenditures on outdoor activities in natural areas (Section 2.1), wildlife viewing (Section 2.2), recreational fishing (Section 2.3), hunting wildlife (Section 2.4) and other nature-related activities (Section 2.5). Expenditures

are reported according to their distribution across the five categories of accommodation, transportation, food, equipment and other items. The nature-related expenditures of residents of the 10 provinces and the Yukon are highlighted in this chapter and are described in more detail in Chapters 6 to 16.

The base for the calculation of averages presented in this chapter is participants from among the Canadian population aged 15 years and over in the 10 provinces and in organized communities in the Yukon.

2.1

### Expenditures on outdoor activities in natural areas

In 1996, Canadians spent over \$7.2 billion on outdoor activities in natural areas<sup>5</sup> in Canada (Figure 1). The average participant spent \$704 during the year, or \$44 per day of participation (Table 1).

Participants from Alberta, British Columbia and the Yukon exceeded the national average of \$704 for yearly expenditures, at \$836, \$902 and \$1,298 respectively (Figure 2). The average for participants from Ontario, Manitoba and Saskatchewan fell close to the national average, whereas those for participants from the remaining provinces fell below it, with the lowest averages occurring among participants from Prince Edward Island, Nova Scotia and New Brunswick at \$410, \$435 and \$438 respectively.

As shown in Table 1, the largest proportions of the \$7.2 billion spent on these activities went for equipment (30.5 percent or \$2.2 billion), followed by transportation (26.0 percent or \$1.9 billion) and food (21.6 percent or \$1.6 billion). The remaining portion went for accommodation (15.6 percent or \$1.1 billion) and for other items such as entry fees and supplies (6.2 percent or \$449 million).

The 10.3 million Canadians who made these expenditures were asked whether wildlife viewing, recreational fishing or hunting were secondary reasons for

<sup>5</sup> "Outdoor activities in natural areas" were defined as trips taken to natural areas for the main reason of participating in one or more of the following 17 activities: sightseeing in natural areas, photographing in natural areas, gathering nuts, berries and firewood, picnicking, camping, swimming/beach activity, canoeing/kayaking/sailing, power boating, hiking/backpacking, climbing, horseback riding, cycling in natural areas, off-road vehicle use, downhill skiing, cross-country skiing/snowshoeing, snowmobiling and relaxing in an outdoor setting. Participants were also asked to indicate whether wildlife viewing, recreational fishing or hunting was a secondary reason for these trips.

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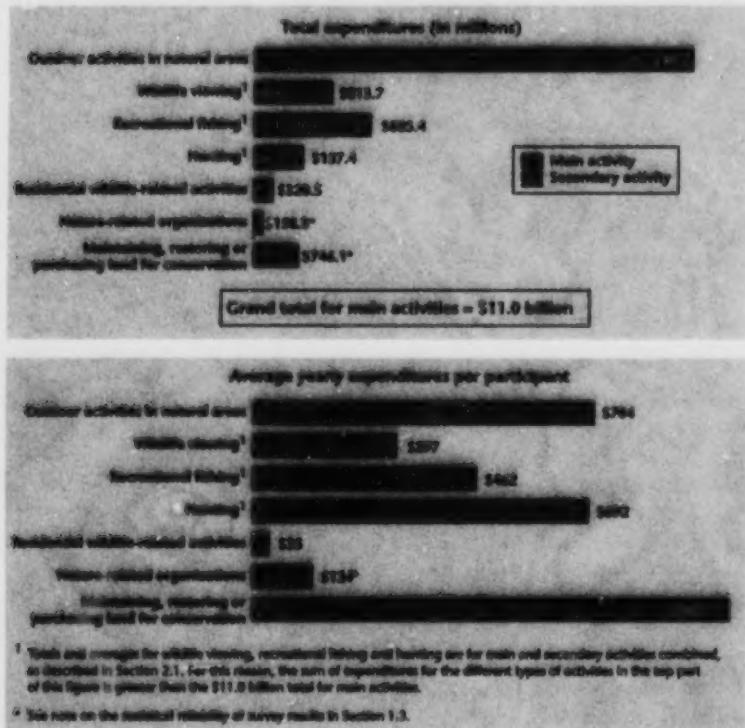
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**TOTAL AND AVERAGE EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN CANADA IN 1996**



<sup>1</sup> Total and average for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined, as described in Section 2.1. For this reason, the sum of expenditures for the different types of activities in the top part of this figure is greater than the \$11.0 billion total for main activities.

\* See note on the statistical reliability of survey results in Section 1.3.

their trips to natural areas for outdoor activities. Highlights of responses on this question include the following:

- Just over half of these participants (5.3 million or 51.3 percent) did not participate in secondary fish- and wildlife-related activities on these trips. They spent \$3.0 billion of the \$7.2 billion total recorded for outdoor activities.
- The remaining 5.0 million participants (48.7 percent of the total) indicated that they had participated in viewing, fishing or hunting as secondary activities on their trips. They recorded expenditures that amounted to \$4.2 billion of the \$7.2 billion spent on outdoor activities.

For certain uses of survey results it is important to include expenditures associated with secondary viewing, fishing or hunting in estimates of total expenditures for these activities. Therefore, an allocation method that is described in Appendix II point 2, was developed to estimate the portion of the \$4.2 billion that can be attributed to each of the secondary activities.

**EXPENDITURES ON NATURE-RELATED ACTIVITIES IN CANADA IN 1996, BY TYPE OF ACTIVITY<sup>1</sup>**

Type of activity	Main activities				Secondary activities				Other nature-related activities
	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	Expenditure	
Accommodation	1,133.9	15.6	65.7	5.0	157.5	8.1	39.0	4.7	—
Transportation	1,884.8	26.0	155.6	12.0	363.5	18.8	166.5	20.2	—
Food	1,565.9	21.6	100.0	7.7	244.7	12.6	99.4	12.1	—
Equipment	2,213.5	30.5	708.3*	54.4	932.5	48.2	382.9	46.5	—
Other items	448.6	6.2	272.2*	20.9	236.7	12.2	136.1	16.5	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	1,224.9
<b>Total<sup>2</sup></b>	<b>\$7,246.7</b>	<b>100.0%</b>	<b>\$1,901.8</b>	<b>100.0%</b>	<b>\$1,934.9</b>	<b>100.0%</b>	<b>\$825.8</b>	<b>100.0%</b>	<b>\$1,224.9</b>
Average yearly	\$704		\$297		\$462		\$692		
Average daily	\$44		\$17		\$27		\$41		

Notes:

- 1 Expenditures included in Part A are those made by Canadians in Canada.
- 2 Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures are calculated, it is not possible to add up the expenditures on activities shown in Table 1 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- 3 Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities (see Section 2.5 for a breakdown of the individual activities). Data on these activities were not broken down by expenditure category.
- 4 Some figures may not total perfectly because of rounding.
- \* See note on the statistical reliability of survey results in Section 1.3.

It was reasoned that in the absence of opportunities for and participation in these secondary activities on these trips, it is likely that trip-related expenditures such as transportation, accommodation and food would still have been made. However, it is also likely that some portion of the \$4.2 billion would have been spent on equipment and other items specific to viewing, fishing or hunting as secondary activities. Such expenditures would not have been made if the participant had not undertaken these secondary fish and wildlife-related activities.

Sections 2.2, 2.3 and 2.4 present the resulting estimates, along with main activity expenditures, i.e. expenditures made when wildlife viewing, fishing or hunting was the main reason for a trip. The sum of secondary and main expenditures presented in those sections provide estimates of total expenditures for each activity.

## 2.2

### Expenditures on wildlife viewing

Canadians spent an estimated \$1.3 billion for wildlife viewing in Canada during 1996 (Figure 1). On average, participants spent \$297, or \$17 per day of participation (Table 1).

Participants from Saskatchewan, Alberta and British Columbia spent higher amounts than the average, at \$344, \$433 and \$420 respectively (Figure 3). The average expenditures for participants from the remaining provinces were below the national average.

Over half (54.4 percent) of the \$1.3 billion spent on wildlife viewing within Canada was used to purchase

equipment such as binoculars or recording equipment (Table 1). The remaining expenditures were distributed as follows: 5.0 percent for accommodation, 12.0 percent for transportation, 7.7 percent for food and 20.9 percent for other purchases such as film.

As described in Section 2.1, expenditures were determined for wildlife viewing as the main activity and viewing as a secondary activity. The survey included more detailed questions for viewing as the main activity, the results of which are reported below.

FIGURE 2

AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN OUTDOOR ACTIVITIES IN NATURAL AREAS IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE

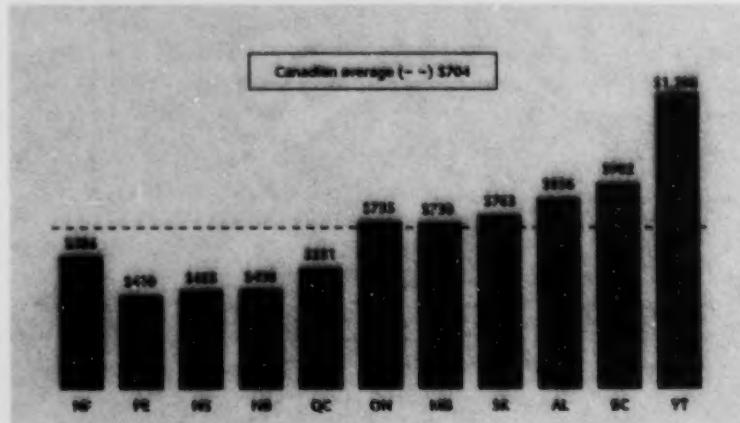


FIGURE 3

AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN WILDLIFE VIEWING IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE

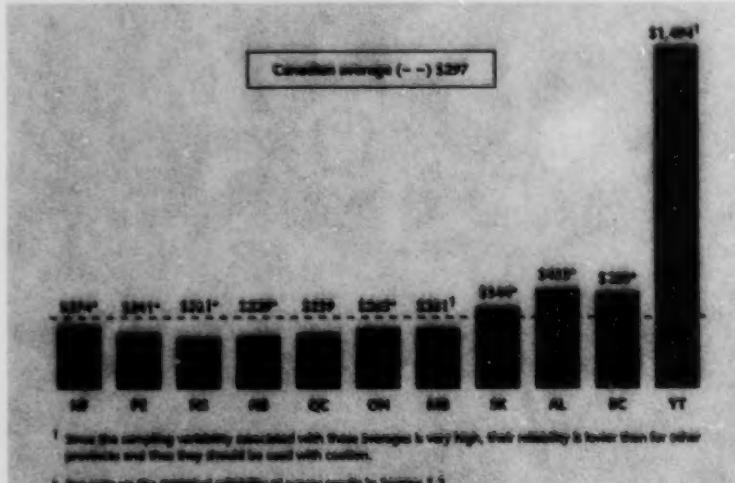
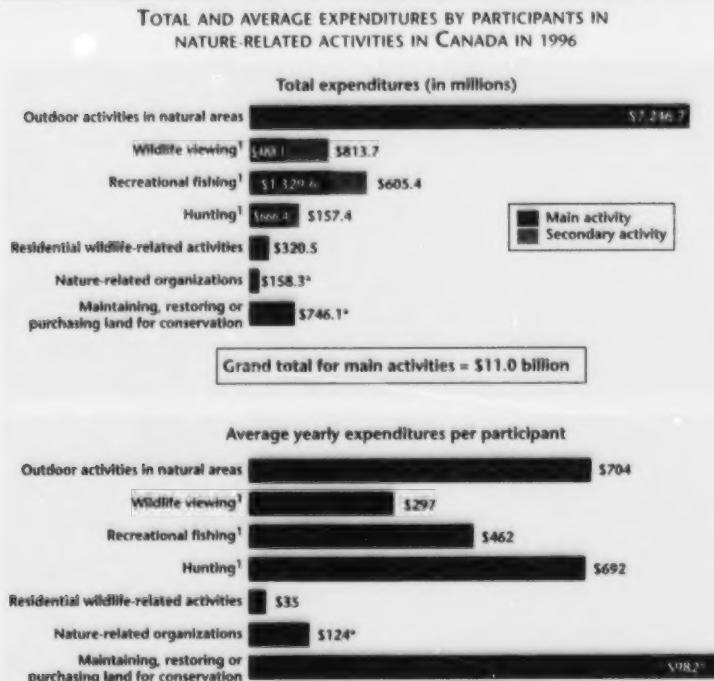


FIGURE 1



<sup>1</sup> Totals and averages for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined, as described in Section 2.1. For this reason, the sum of expenditures for the different types of activities in the top part of this figure is greater than the \$11.0 billion total for main activities.

<sup>2</sup> See note on the statistical reliability of survey results in Section 1.3.

TABLE 1

**EXPENDITURES ON NATURE-RELATED ACTIVITIES IN CANADA IN 1996, BY TYPE OF ACTIVITY<sup>1</sup>**

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>2</sup>		Recreational fishing <sup>2</sup>		Hunting wildlife <sup>2</sup>		Other nature-related activities <sup>3</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	1,133.9	15.6	65.7	5.0	157.5	8.1	39.0	4.7	—
Transportation	1,884.8	26.0	155.6	12.0	363.5	18.8	166.5	20.2	—
Food	1,565.9	21.6	100.0	7.7	244.7	12.6	99.4	12.1	—
Equipment	2,213.5	30.5	708.3 <sup>4</sup>	54.4	932.5	48.2	382.9	46.5	—
Other items	448.6	6.2	272.2 <sup>5</sup>	20.9	236.7	12.2	136.1	16.5	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	1,224.9
<b>Total<sup>6</sup></b>	<b>\$7,246.7</b>	<b>100.0%</b>	<b>\$1,301.8</b>	<b>100.0%</b>	<b>\$1,934.9</b>	<b>100.0%</b>	<b>\$823.8</b>	<b>100.0%</b>	<b>\$1,224.9</b>
Average yearly	\$704		\$297		\$462		\$692		
Average daily	\$44		\$17		\$27		\$41		

**Notes:**

<sup>1</sup> Expenditures included in Part A are those made by Canadians in Canada.

<sup>2</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures are calculated, it is not possible to add up the expenditures on activities shown in Table 1 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>3</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities (see Section 2.3 for a breakdown of the individual activities). Data on these activities were not broken down by expenditure category.

<sup>4</sup> Some figures may not total perfectly because of rounding.

<sup>5</sup> See note on the statistical reliability of survey results in Section 1.3.

their trips to natural areas for outdoor activities. Highlights of responses on this question include the following:

- Just over half of these participants (5.3 million or 51.3 percent) did not participate in secondary fish- and wildlife-related activities on these trips. They spent \$3.0 billion of the \$7.2 billion total recorded for outdoor activities.
- The remaining 5.0 million participants (48.7 percent of the total) indicated that they had participated in viewing, fishing or hunting as secondary activities on their trips. They recorded expenditures that amounted to \$4.2 billion of the \$7.2 billion spent on outdoor activities.

For certain uses of survey results it is important to include expenditures associated with secondary viewing, fishing or hunting in estimates of total expenditures for these activities. Therefore, an allocation method that is described in Appendix II point 2, was developed to estimate the portion of the \$4.2 billion that can be attributed to each of the secondary activities.

It was reasoned that in the absence of opportunities for and participation in these secondary activities on these trips, it is likely that trip-related expenditures such as transportation, accommodation and food would still have been made. However, it is also likely that some portion of the \$4.2 billion would have been spent on equipment and other items specific to viewing, fishing or hunting as secondary activities. Such expenditures would not have been made if the participant had not undertaken these secondary fish and wildlife-related activities.

Sections 2.2, 2.3 and 2.4 present the resulting estimates, along with main activity expenditures, i.e. expenditures made when wildlife viewing, fishing or hunting was the main reason for a trip. The sum of secondary and main expenditures presented in those sections provide estimates of total expenditures for each activity.

## 2.2

### Expenditures on wildlife viewing

Canadians spent an estimated \$1.3 billion for wildlife viewing in Canada during 1996 (Figure 1). On average, participants spent \$297, or \$17 per day of participation (Table 1).

Participants from Saskatchewan, Alberta and British Columbia spent higher amounts than the average, at \$344, \$433 and \$420 respectively (Figure 3). The average expenditures for participants from the remaining provinces were below the national average.

Over half (54.4 percent) of the \$1.3 billion spent on wildlife viewing within Canada was used to purchase

equipment such as binoculars or recording equipment (Table 1). The remaining expenditures were distributed as follows: 5.0 percent for accommodation, 12.0 percent for transportation, 7.7 percent for food and 20.9 percent for other purchases such as film.

As described in Section 2.1, expenditures were determined for wildlife viewing as the main activity and viewing as a secondary activity. The survey included more detailed questions for viewing as the main activity, the results of which are reported below.

FIGURE 2

AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN OUTDOOR ACTIVITIES IN NATURAL AREAS IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE

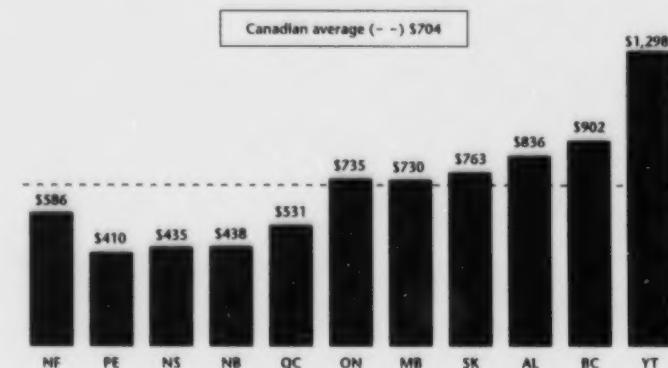
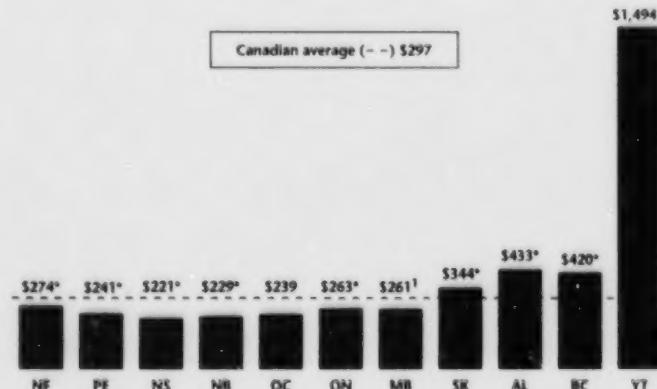


FIGURE 3

AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN WILDLIFE VIEWING IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE



<sup>a</sup> Since the sampling variability associated with these averages is very high, their reliability is lower than for other provinces and thus they should be used with caution.

<sup>b</sup> See note on the statistical reliability of survey results in Section 1.3.

## Expenditures on recreational fishing

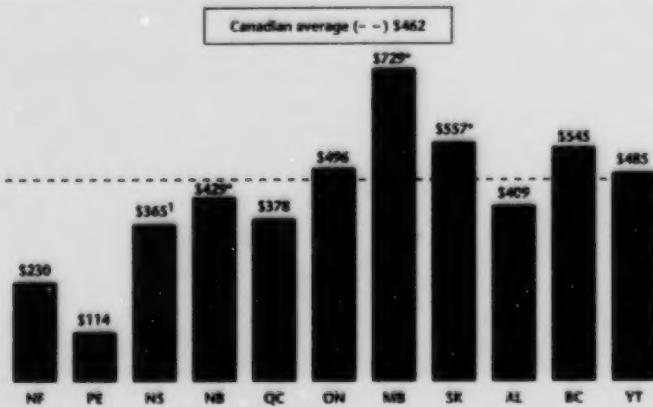
In 1996, \$488.1 million was spent on wildlife viewing as the main activity, whereas viewing as a secondary activity was estimated to involve expenditures of \$813.7 million (Figure 1).

Highlights for the \$488.1 million spent for viewing as the main activity include the following:

- On average, these participants spent \$332, or \$30 per day of participation.
- Nearly two-thirds of their expenditures were trip-related (including 13.5 percent of expenditures for accommodation, 31.9 percent for transportation and 20.5 percent for food). A further 28.1 percent<sup>6</sup> of their expenditures were for equipment, and the remaining 6.0 percent<sup>7</sup> went for other items.

FIGURE 4

### AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN RECREATIONAL FISHING IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE



<sup>1</sup> Since the sampling variability associated with this average is very high, the reliability is lower than for other provinces and thus it should be used with caution.

<sup>2</sup> See note on the statistical reliability of survey results in Section 1.3.

less than the national average, with the lowest averages occurring among participants from Newfoundland and Prince Edward Island at \$230 and \$114 respectively.

Fishing equipment accounted for the largest proportion of the \$1.9 billion Canadian anglers spent in Canada, at 48.2 percent of the total (Table 1).

Expenditures on transportation accounted for a further 18.8 percent, food for 12.6 percent, accommodation for 8.1 percent and other items such as license fees and bait for 12.2 percent.

Expenditures were determined for fishing as the main activity and fishing as a secondary activity, as described in Section 2.1. Survey results from the more detailed questions on fishing as the main activity are reported below.

In 1996, \$1.3 billion was spent for recreational fishing as the main activity, whereas fishing as a secondary activity was estimated to involve expenditures of \$605.4 million (Figure 1).

Highlights for the \$1.3 billion spent for fishing as the main activity include the following:

- On average, these participants spent \$427, or \$40 per day of participation.
- The distribution of their expenditures was 36.0 percent for equipment, 27.3 percent for transportation, 18.4 percent for food, 11.8 percent for accommodation and 6.4 percent for other items.

<sup>3</sup> See note on the statistical reliability of survey results in section 1.3.

## Expenditures on hunting

In total, Canadians spent an estimated \$823.8 million hunting wildlife in 1996 (Figure 1). On average, participants spent \$692, or \$41 per day of participation (Table 1).

Participants from Alberta, British Columbia and the Yukon greatly exceeded the national average of \$692 for yearly expenditures, at \$843, \$1,017 and \$901 respectively (Figure 5). The averages for participants from Newfoundland, Quebec, Ontario and Saskatchewan fell close to the national average, whereas those for participants from the remaining provinces fell below it, with the lowest average occurring among participants from New Brunswick at \$415.

Hunting equipment accounted for 46.5 percent of the \$823.8 million spent within Canada (Table 1). The remaining amount went for trip-related expenses including transportation (20.2 percent), food (12.1 percent) and accommodation (4.7 percent), or for other items such as license fees and ammunition (16.5 percent).

Expenditures were determined for hunting as the main activity and hunting as a secondary activity. The more detailed survey results for hunting as the main activity are reported below.

In 1996, \$666.4 million was spent for hunting as the main activity, whereas hunting as a secondary activity was estimated to involve expenditures of \$157.4 million (Figure 1).

Highlights for the \$666.4 million spent for hunting as the main activity include the following:

- Nearly two-thirds of these expenditures (63.1 percent or \$420.6 million) were made by large game hunters. The remaining third were made by hunters of birds other than waterfowl (15.1 percent of expenditures or \$100.7 million), waterfowl hunters (12.5 percent or \$83.3 million) and small game hunters (9.3 percent or \$61.7 million).<sup>5</sup>
- On average, these hunters spent \$669, or \$54 per day of participation. Large game hunters spent the highest average annual amount on their hunting at \$587, followed by waterfowl hunters (\$384), small game hunters (\$297) and hunters of birds other than waterfowl (\$288).

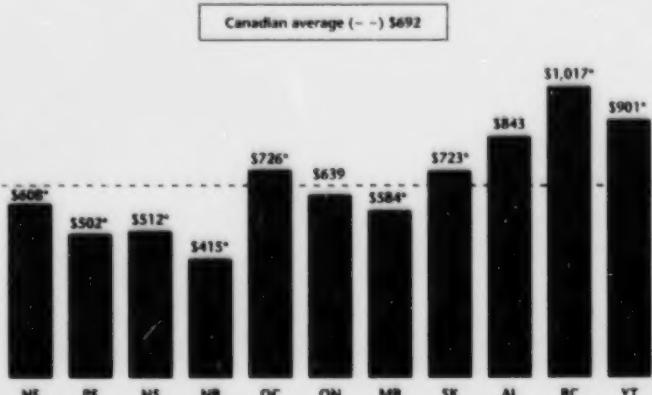
- The \$666.4 million spent by these hunters was distributed as follows: 42.9 percent for equipment, 25.0 percent for transportation, 14.9 percent for food, 5.8 percent for accommodation and 11.4 percent for other items.

## Expenditures on other nature-related activities

Expenditures on other nature-related activities accounted for \$1.2 billion of the total amount spent on these activities during 1996. This includes the expenditures of those who participated in residential wildlife-related activities, joined or contributed to nature-related organizations, or maintained, restored

FIGURE 5

### AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN HUNTING WILDLIFE IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE



\* See note on the statistical reliability of survey results in Section 1.3.

<sup>5</sup> See note on the statistical reliability of survey results in section 1.3. —

In 1996, \$488.1 million was spent on wildlife viewing as the main activity, whereas viewing as a secondary activity was estimated to involve expenditures of \$813.7 million (Figure 1).

Highlights for the \$488.1 million spent for viewing as the main activity include the following:

- On average, these participants spent \$332, or \$30 per day of participation.
- Nearly two-thirds of their expenditures were trip-related (including 13.5 percent of expenditures for accommodation, 31.9 percent for transportation and 20.5 percent for food). A further 28.1 percent<sup>6</sup> of their expenditures were for equipment, and the remaining 6.0 percent<sup>7</sup> went for other items.

## Expenditures on recreational fishing

In 1996, Canadians spent an estimated \$1.9 billion for recreational fishing in Canada (Figure 1). On average, participants spent \$462, or \$27 per day of participation (Table 1).

Average yearly expenditures on fishing varied widely across Canada, with residents of Manitoba, Saskatchewan and British Columbia spending the greatest amounts at \$729, \$557 and \$545 respectively (Figure 4). Residents of New Brunswick, Ontario, Alberta and the Yukon spent amounts close to the national average of \$462. Residents of the remaining provinces spent

less than the national average, with the lowest averages occurring among participants from Newfoundland and Prince Edward Island at \$230 and \$114 respectively.

Fishing equipment accounted for the largest proportion of the \$1.9 billion Canadian anglers spent in Canada, at 48.2 percent of the total (Table 1).

Expenditures on transportation accounted for a further 18.8 percent, food for 12.6 percent, accommodation for 8.1 percent and other items such as license fees and bait for 12.2 percent.

Expenditures were determined for fishing as the main activity and fishing as a secondary activity, as described in Section 2.1. Survey results from the more detailed questions on fishing as the main activity are reported below.

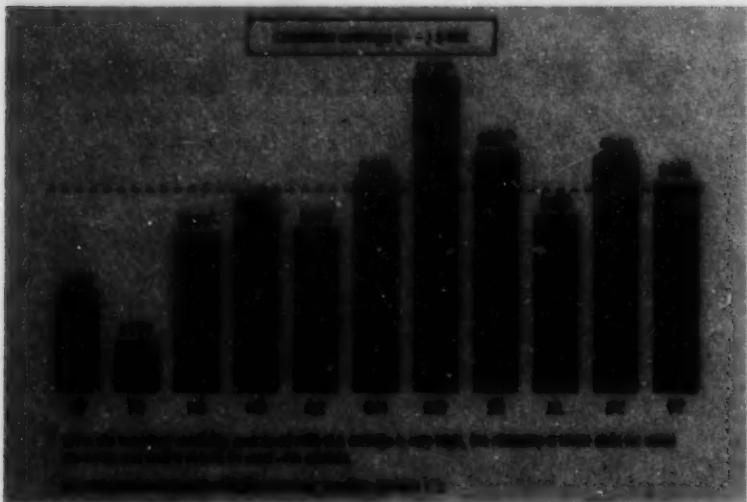
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Highlights for the \$1.3 billion spent for fishing as the main activity include the following:

- On average, these participants spent \$427, or \$40 per day of participation.
- The distribution of their expenditures was 36.0 percent for equipment, 27.3 percent for transportation, 18.4 percent for food, 11.8 percent for accommodation and 6.4 percent for other items.

<sup>6,7</sup> See note on the statistical reliability of survey results in section 1.3. " \* ".

AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN RECREATIONAL FISHING IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE



## Expenditures on hunting

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Hunting equipment accounted for 46.5 percent of the \$823.8 million spent within Canada (Table 1). The remaining amount went for trip-related expenses including transportation (20.2 percent), food (12.1 percent) and accommodation (4.7 percent), or for other items such as license fees and ammunition (16.5 percent).

Expenditures were determined for hunting as the main activity and hunting as a secondary activity. The more detailed survey results for hunting as the main activity are reported below.

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Highlights for the \$666.4 million spent for hunting as the main activity include the following:

- Nearly two-thirds of these expenditures (63.1 percent or \$420.6 million) were made by large game hunters. The remaining third were made by hunters of birds other than waterfowl (15.1 percent of expenditures or \$100.7 million), waterfowl hunters (12.5 percent or \$83.3 million) and small game hunters (9.3 percent or \$61.7 million).<sup>8</sup>
- On average, these hunters spent \$669, or \$54 per day of participation. Large game hunters spent the highest average annual amount on their hunting at \$587, followed by waterfowl hunters (\$384), small game hunters (\$297) and hunters of birds other than waterfowl (\$288).

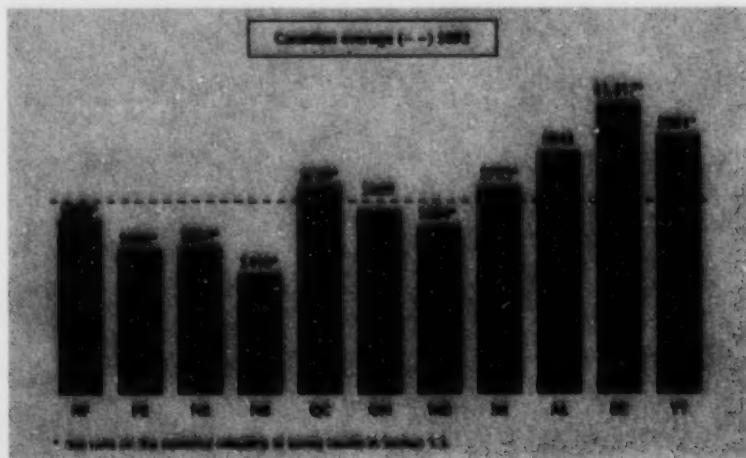
- The \$666.4 million spent by these hunters was distributed as follows: 42.9 percent for equipment, 25.0 percent for transportation, 14.9 percent for food, 5.8 percent for accommodation and 11.4 percent for other items.

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FIGURE 5

AVERAGE YEARLY EXPENDITURES BY PARTICIPANTS IN HUNTING WILDLIFE IN CANADA IN 1996, BY PROVINCE OR TERRITORY OF RESIDENCE



<sup>8</sup> See note on the statistical reliability of survey results in section 1.3, " ".

or purchased land for conservation. Highlights for the individual activities include the following:

- In 1996, \$746.1 million was spent by Canadians to maintain, restore or purchase land for fish and wildlife habitat or to sustain a natural setting (Figure 1). These participants spent an average of \$982 each during the year.
- Participants in residential wildlife-related activities spent \$320.5 million, or an annual expenditure per participant of \$35.

- Canadians contributed \$158.3 million in membership fees or donations to nature-related organizations, or \$124 per contributor.

### **Comparability with previous surveys**

The questionnaire for the 1996 Survey on the Importance of Nature to Canadians included questions similar in many respects to those used in the 1981, 1987 and 1991 Surveys on the Importance of Wildlife to Canadians. For example, question wording in the sections on Trips Taken to Watch, Feed,

Photograph or Study Wildlife, Fishing for Recreation, Hunting Waterfowl, Other Birds, Small Mammals and Large Mammals, and other sections in the surveys may appear to be very similar. However, users comparing results on expenditures from the two surveys should be aware that the differences may be due in part to changes in the questionnaire and not necessarily to actual increases or declines in expenditures in those activities over time. Guidelines for taking these and other changes and enhancements to the questionnaire into account when attempting to make comparisons with the 1991 Wildlife Survey are provided in Appendix II.

### 3. WHAT IS MEANT BY "ECONOMIC SIGNIFICANCE"

In 1996, 20 million Canadians spent a total of 1.5 billion days taking part in nature-related activities. These nature-related activities generated both direct and indirect benefits. Although both types of benefits are important in explaining the "economic significance" of nature in Canada, each is intended to answer a different but complementary question.

**Direct benefits** are economic values that people place on the utilization of a resource. In this study, indicators of direct benefits were obtained in response to the question on how much value people place on nature-related activities.

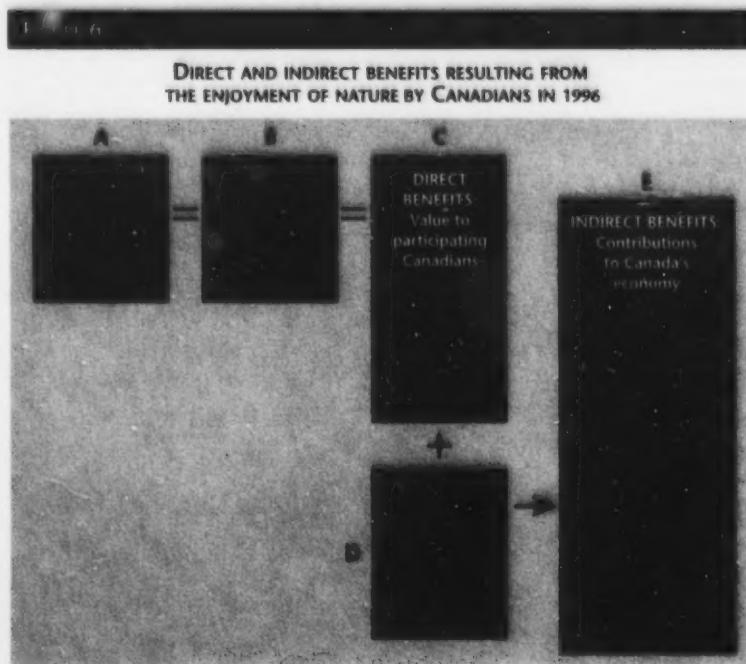
**Indirect benefits** are indicators of the economic activity generated by the use of a resource. In this study, indicators of indirect benefits were obtained in response to the question on the magnitude of the economic impacts that result from expenditures by participants in nature-related activities.

These two distinct types of benefits are illustrated in Figure 6. The vast majority of those who engage in nature-related activities derive considerable enjoyment from their participation (A). For people sightseeing in natural areas, their satisfaction could come from a sunset or the sight of the beautiful leaves in the fall. For hikers, it could be the enjoyment of climbing a new mountain; for hunters, it could be the challenge and excitement of stalking game; for bird-watchers, it could be the satisfaction of spotting their first warbler in the spring or of finding a species new to them. In order to experience these kinds of interactions with nature, Canadians are prepared to pay for the enjoyment they receive from those nature-related

activities. In fact, those who took part in nature-related activities in 1996 indicated that they would be willing to pay \$13.0 billion (B). This total willingness to pay for the enjoyment provided by nature every year is composed of two distinct components: the actual expenditures made to participate in nature-related activities (D), and an additional amount, an economic value, for the value of the enjoyment received but not paid for (C).

This economic value is a reflection of the importance that participants attach to nature-related activities, and it is comparable with the economic values of other goods and services that people depend on to meet their needs. Further insights on the concept of economic value are provided in Section 5.1.

For the 12-month period of 1996, expenditures made by Canadians in Canada on nature-related activities amounted to \$11.0 billion. The same participants also reported that they would be willing to pay an additional \$2.0 billion for the enjoyment that they received from nature-related activities during the year. This is an indication of the magnitude of the economic value (direct benefits) of nature-related activities across Canada. The expenditures of participants led to important economic impacts (indirect benefits) at national, provincial and territorial levels (E). These important ripple effects on the economy can be measured through contributions to the country's gross domestic product (GDP) and to employment, among others. Further insights on indirect benefits are given in Section 4.1.





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**Direct benefits** are economic values that people place on the utilization of a resource. In this study, indicators of direct benefits were obtained in response to the question *what is the value people place on their nature-related activities?*

**Indirect benefits** are indicators of the non-market goods generated by the use of a resource. In this study, indicators of indirect benefits were obtained in response to the question of the magnitude of the economic impacts that result from expenditures by Canadians on nature-related activities.

From the questionings of benefits, six categories of benefits are illustrated in Figure 6. The cost of some of these benefits, such as those associated with bird-watching, could be considerable even from their participation. As the people sightseeing the natural areas, their satisfaction could come from a sense of the sight of the beautiful leaves in the fall. For hikers, it could be the enjoyment of climbing a new mountain. For hunters, it could be the challenge and excitement of a challenging game. For bird-watchers, it could be the satisfaction of spotting their first warbler in the spring or of finding a species new to them. In order to experience these kinds of interactions with nature, Canadians are prepared to pay for the enjoyment they receive from those nature-related

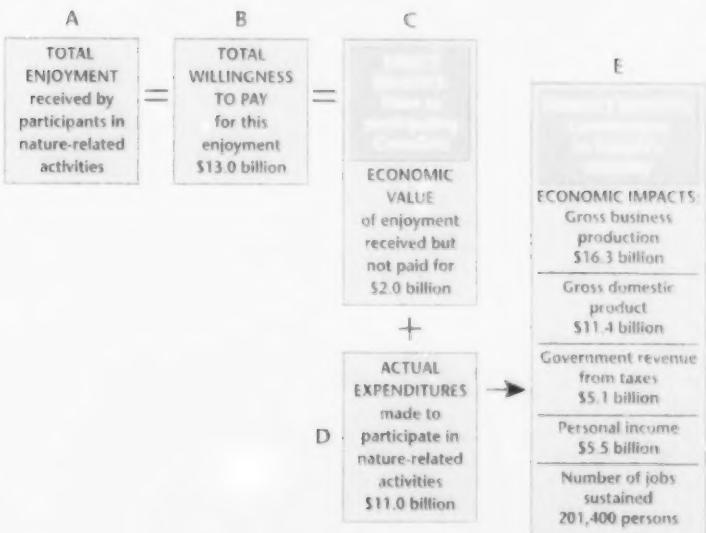
activities. In fact, those who took part in nature-related activities in 1996 indicated that they would be willing to pay \$13.0 billion (B). This total willing to pay for the enjoyment provided by nature every year is composed of two distinct components: the actual expenditures made to participate in nature-related activities (D) and an additional amount, an economic value, for the value of the enjoyment received but not paid for (A).

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For the 12-month period of 1996, expenditures made by Canadians in Canada on nature-related activities amounted to \$11.0 billion. The same participants reported that they would be willing to pay an additional \$2.0 billion for the enjoyment that they received from nature-related activities during the year. This is an integration of the magnitude of the economic value of direct benefits of nature-related activities (C). The economic values of participants for enjoyment are not unique to individuals, however, as all individuals, groups, and organizations have them. These important impacts affect the economy, as it may be caused through contributions by the government, gross domestic product (GDP) and to employment, among others. Further insights on indirect economic impacts are given in Section 4.1.

FIGURE 6

DIRECT AND INDIRECT BENEFITS RESULTING FROM THE ENJOYMENT OF NATURE BY CANADIANS IN 1996



## 4. INDIRECT BENEFITS: CONTRIBUTIONS TO CANADA'S ECONOMY

Indirect benefits consist of impacts on the economy that result from the expenditures made by participants on nature-related activities (see Figure 6, D and E). Measuring the economic impacts of these activities on the national, provincial and territorial economies for 1996 involved several steps, beginning with the collection of vital information on expenditures by participants.

As reported in Chapter 2, residents of Canada spent a total of \$11.0 billion on nature-related activities in Canada during 1996. Of this total, approximately \$3.1 billion, or 28.4 percent, was spent on equipment used primarily for nature-related activities (Figure 7). Another \$2.6 billion (23.5 percent) was spent on transportation, \$2.0 billion (18.4 percent) on food, \$1.4 billion (12.7 percent) on accommodation and \$639.8 million (5.8 percent) on other items such as entry fees. The remaining

\$1.2 billion (11.2 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

These expenditures led to the significant economic impacts described in Section 4.1. The expenditures of residents of the 10 provinces and the Yukon, and a breakdown by category of expenditure are discussed in Chapters 6 to 16.<sup>9</sup>

### 4.1 Impacts of expenditures on the economy

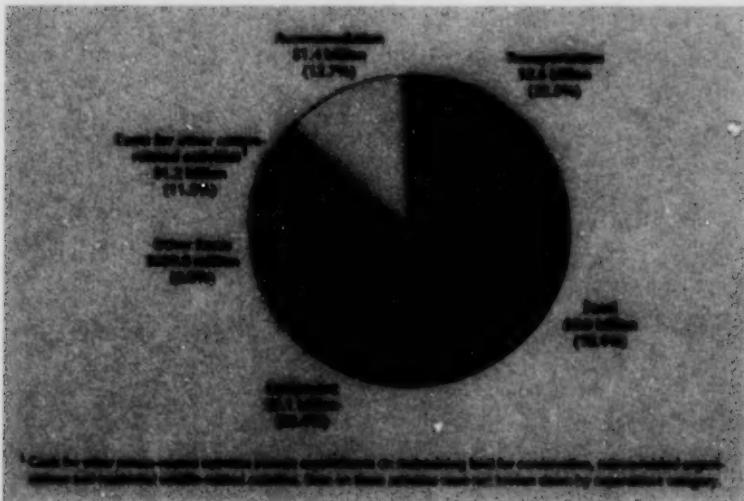
Expenditures on nature-related activities (Figure 7) have important impacts on local, provincial, territorial and national components of the Canadian economy. These impacts are expressed in terms of such indicators as contributions to the gross domestic product

(GDP), personal income, number of jobs sustained and government revenue from taxes.

Total economic impacts for Canada exceed the initial expenditures because of the cumulative ripple effects of three different types of impacts. To illustrate how these three types of impacts occur, one can consider the example of equipment purchased either to hike, to hunt or to observe wildlife. For the first type of impact (i.e., direct), the purchased equipment supports employment and income in the retail sector of the economy. For the second type (i.e., indirect), impacts occur with the purchase by manufacturers of steel, leather, wood, glass and other materials, as well as financial, transportation and other services. Further impacts might include the purchase of primary resources, such as iron ore and coal, by the manufacturing industries. For the third type of impact (i.e., induced), the incomes earned by those employed in these industries are partially spent on goods and services, which induces further employment and income impacts throughout the economy.

The latest input-output models available from Statistics Canada were used to compute these impacts at various stages in the production of goods and services. In the process, Nature Survey expenditure data, broken down into seven expenditure categories totaling \$11.0 billion, were allocated to 56 of the 679 commodities represented in

DISTRIBUTION OF \$11.0 BILLION NATURE-RELATED EXPENDITURES FOR CANADA IN 1996



<sup>9</sup> Expenditures made by residents of a province or territory are considered to have been made within that province or territory. Expenditures made outside a province or territory are relatively small. Moreover, this outflow is partly offset by expenditures made by residents from the other provinces or territories.

the input-output models in accordance with the pattern of consumption expenditures by Canadians in 1996.<sup>10</sup>

The economic impacts of nature-related expenditures in 1996 are shown in Figure 8 (for provincial or territorial impacts see Chapter 6 to 16). The first indicator, gross business production, is a measure of overall business activity within Canada. During 1996, \$16.3 billion of business production at the intermediate and final stages was generated as a result of nature-related activities. In other words, for every dollar spent on nature-related activities, almost \$1.50 of gross business production was generated. The next indicator, gross domestic product (GDP), is one of the most widely quoted measures of economic performance. Nature-related expenditures contributed \$11.4 billion to Canada's GDP. Some 201,400 jobs were supported as a result of expenditures on nature-related activities. These jobs accounted for most of the \$5.5 billion in personal income. As a result of taxes on various goods and services and on personal and business incomes, \$5.1 billion in revenue was received by federal, provincial, territorial and local governments.

expenditures for selected nature-related activities are presented. The results as shown in Table 2 indicate that:

- Expenditures on outdoor activities in natural areas resulted in a contribution of \$7.1 billion to Canada's gross domestic product. An estimated 124,200 jobs were supported as a result of these expenditures and \$3.4 billion was received in government revenue from taxes.
- Wildlife viewing expenditures generated \$1.3 billion in GDP. Some 22,300 jobs were supported

and governments received over \$605 million in tax revenues.

- The economic impacts of recreational fishing expenditures included \$1.9 billion in contribution to the GDP and the support of some 33,200 jobs. Federal, provincial, territorial governments received nearly \$900 million in revenue from taxes.
- Hunting expenditures contributed \$815 million to Canada's GDP. Some 14,200 jobs were sustained by this economic activity and \$384 million in revenue from taxes was received by all levels of governments.

FIGURE 8

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN CANADA IN 1996 AND RESULTING ECONOMIC IMPACTS

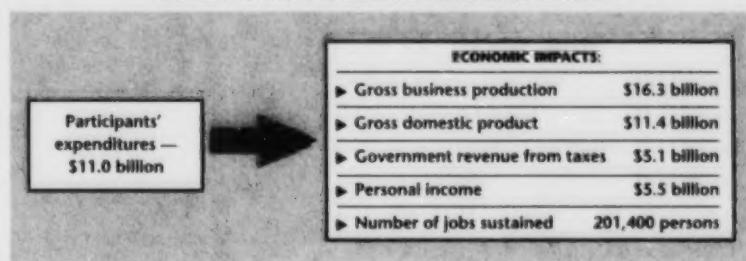


TABLE 2

EXPENDITURES BY PARTICIPANTS IN SELECTED NATURE-RELATED ACTIVITIES IN CANADA IN 1996 AND RESULTING ECONOMIC IMPACTS

Nature-related activity	Expenditures <sup>1</sup> (\$ millions)	Economic impacts <sup>2</sup>		
		Gross domestic product	Government revenue from taxes	Number of jobs sustained
Outdoor activities in natural areas	\$7,246.7	\$7,145.2	\$3,365.1	124,200
Wildlife viewing <sup>1</sup>	\$1,301.8	\$1,285.2	\$605.3	22,300
Recreational fishing <sup>1</sup>	\$1,934.9	\$1,908.6	\$898.9	33,200
Hunting <sup>1</sup>	\$823.8	\$815.2	\$383.9	14,200

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined, as described in Section 2.1. Due to the manner in which the secondary expenditures are calculated, it is not possible to add up the expenditures on activities shown in Table 2 without duplication.

<sup>2</sup> A second set of input-output simulations was prepared by Statistics Canada to calculate the economic impacts for the activities that had the same categories of expenditures (accommodation, transportation, food, equipment and other items).

<sup>10</sup> For additional information on procedures and for assumptions concerning the input-output models, see references 4, 13, 14, and 15 in Appendix III.

## 4. INDIRECT BENEFITS: CONTRIBUTIONS TO CANADA'S ECONOMY

Indirect benefits consist of impacts on the economy that result from the expenditures made by participants on nature-related activities (see Figure 6, D and E). Measuring the economic impacts of these activities on the national, provincial and territorial economies for 1996 involved several steps, beginning with the collection of vital information on expenditures by participants.

As reported in Chapter 2, residents of Canada spent a total of \$11.0 billion on nature-related activities in Canada during 1996. Of this total, approximately \$3.1 billion, or 28.4 percent, was spent on equipment used primarily for nature-related activities (Figure 7). Another \$2.6 billion (23.5 percent) was spent on transportation, \$2.0 billion (18.4 percent) on food, \$1.4 billion (12.7 percent) on accommodation and \$639.8 million (5.8 percent) on other items such as entry fees. The remaining

\$1.2 billion (11.2 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

These expenditures led to the significant economic impacts described in Section 4.1. The expenditures of residents of the 10 provinces and the Yukon, and a breakdown by category of expenditure are discussed in Chapters 6 to 16.<sup>9</sup>

### 4.1

#### Impacts of expenditures on the economy

Expenditures on nature-related activities (Figure 7) have important impacts on local, provincial, territorial and national components of the Canadian economy. These impacts are expressed in terms of such indicators as contributions to the gross domestic product

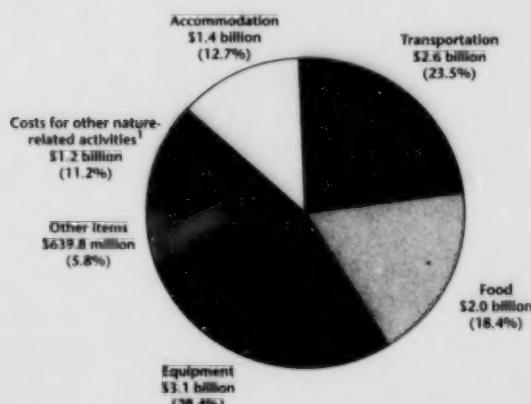
(GDP), personal income, number of jobs sustained and government revenue from taxes.

Total economic impacts for Canada exceed the initial expenditures because of the cumulative ripple effects of three different types of impacts. To illustrate how these three types of impacts occur, one can consider the example of equipment purchased either to hike, to hunt or to observe wildlife. For the first type of impact (i.e., direct), the purchased equipment supports employment and income in the retail sector of the economy. For the second type (i.e., indirect), impacts occur with the purchase by manufacturers of steel, leather, wood, glass and other materials, as well as financial, transportation and other services. Further impacts might include the purchase of primary resources, such as iron ore and coal, by the manufacturing industries. For the third type of impact (i.e., induced), the incomes earned by those employed in these industries are partially spent on goods and services, which induces further employment and income impacts throughout the economy.

The latest input-output models available from Statistics Canada were used to compute these impacts at various stages in the production of goods and services. In the process, Nature Survey expenditure data, broken down into seven expenditure categories totaling \$11.0 billion, were allocated to 56 of the 679 commodities represented in

FIGURE 7

DISTRIBUTION OF \$11.0 BILLION NATURE-RELATED EXPENDITURES FOR CANADA IN 1996



<sup>1</sup> Costs for other nature-related activities include expenditures on maintaining land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>9</sup> Expenditures made by residents of a province or territory are considered to have been made within that province or territory. Expenditures made outside a province or territory are relatively small. Moreover, this outflow is partly offset by expenditures made by residents from the other provinces or territories.

the input-output models in accordance with the pattern of consumption expenditures by Canadians in 1996.<sup>10</sup>

The economic impacts of nature-related expenditures in 1996 are shown in Figure 8 (for provincial or territorial impacts see Chapter 6 to 16). The first indicator, gross business production, is a measure of overall business activity within Canada. During 1996, \$16.3 billion of business production at the intermediate and final stages was generated as a result of nature-related activities. In other words, for every dollar spent on nature-related activities, almost \$1.50 of gross business production was generated. The next indicator, gross domestic product (GDP), is one of the most widely quoted measures of economic performance. Nature-related expenditures contributed \$11.4 billion to Canada's GDP. Some 201,400 jobs were supported as a result of expenditures on nature-related activities. These jobs accounted for most of the \$5.5 billion in personal income. As a result of taxes on various goods and services and on personal and business incomes, \$5.1 billion in revenue was received by federal, provincial, territorial and local governments.

#### 4.2

### Impacts of expenditures on the economy for selected nature-related activities

Economic impacts for nature-related activities as a whole were presented in section 4.1. In this section, the impacts on the Canadian economy of

expenditures for selected nature-related activities are presented. The results as shown in Table 2 indicate that:

- Expenditures on outdoor activities in natural areas resulted in a contribution of \$7.1 billion to Canada's gross domestic product. An estimated 124,200 jobs were supported as a result of these expenditures and \$3.4 billion was received in government revenue from taxes.
- Wildlife viewing expenditures generated \$1.3 billion in GDP. Some 22,300 jobs were supported

and governments received over \$605 million in tax revenues.

- The economic impacts of recreational fishing expenditures included \$1.9 billion in contribution to the GDP and the support of some 33,200 jobs. Federal, provincial, territorial governments received nearly \$900 million in revenue from taxes.
- Hunting expenditures contributed \$815 million to Canada's GDP. Some 14,200 jobs were sustained by this economic activity and \$384 million in revenue from taxes was received by all levels of governments.

FIGURE 8

#### EXPENDITURES BY PARTICIPANTS IN NATURE RELATED ACTIVITIES IN CANADA IN 1996 AND RESULTING ECONOMIC IMPACTS

ECONOMIC IMPACTS:	
► Gross business production	\$16.3 billion
► Gross domestic product	\$11.4 billion
► Government revenue from taxes	\$5.1 billion
► Personal income	\$5.5 billion
► Number of jobs sustained	201,400 persons

TABLE 2

#### EXPENDITURES BY PARTICIPANTS IN SELECTED NATURE-RELATED ACTIVITIES IN CANADA IN 1996 AND RESULTING ECONOMIC IMPACTS

Nature-related activity	Expenditures \$ million	Economic impacts <sup>2</sup>		
		Gross domestic product	Government revenue from taxes	Number of jobs sustained
Outdoor activities in natural areas	\$7,246.7	\$7,145.2	\$3,365.1	124,200
Wildlife viewing <sup>1</sup>	\$1,301.8	\$1,285.2	\$605.3	22,300
Recreational fishing <sup>1</sup>	\$1,934.9	\$1,908.6	\$898.9	33,200
Hunting <sup>1</sup>	\$823.8	\$815.2	\$383.9	14,200

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures are calculated, it is not possible to add up the expenditures on activities shown in Table 2 without duplication.

<sup>2</sup> A second set of input-output simulations was prepared by Statistics Canada to calculate the economic impacts for the activities that had the same categories of expenditures (accommodation, transportation, food, equipment and other items).

<sup>10</sup> For additional information on procedures and for assumptions concerning the input-output models, see references 4, 13, 14, and 15 in Appendix III.



## 5. DIRECT BENEFITS: VALUE TO PARTICIPATING CANADIANS

We have seen that nature-related activities provide significant indirect benefits to Canada's economy, but how important are these activities as a source of direct benefits to people? In other words, "How much value do Canadians place on nature-related activities?" This chapter describes the manner in which this question was addressed in the survey. It then presents the magnitude of this economic value (direct benefits) for all Canadians. Chapters 6 to 16 present the value for the residents of the 10 provinces and the Yukon.

TABLE 3

ECONOMIC VALUE OF  
NATURE-RELATED ACTIVITIES  
FOR CANADA IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	132.1	8.2
Wildlife viewing <sup>1</sup>	78.4	7.0
Recreational fishing <sup>1</sup>	104.7	9.9
Hunting <sup>1,2</sup>		
Large mammals	150.0	14.9
Small mammals	71.1	6.7
Waterfowl	121.3	14.6
Other birds	73.2	8.6
All hunting	181.2	14.5

Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

### 5.1

#### Economic value of nature-related activities

Measuring the economic value of nature-related activities presents a formidable challenge. On one hand, most natural areas and wildlife are common property resources — they belong to all Canadians. On the other hand, most nature-related activities are organized by the participants themselves, who generally do not have to pay a market price for these activities. Hence, there is little or no information readily available on the economic value of these nature-related activities. For these reasons, participants in the 1996 Nature Survey were asked about their willingness to pay for nature-related tourism and recreation so that an economic value could be derived — an economic value that is comparable with that of goods and services readily available in the marketplace to meet human needs. The resulting dollar amounts for natural areas and wildlife reflect direct benefits that occur outside the marketplace.

First, participants were asked how much they actually spent on nature-related activities (see Figure 6, D, and Chapter 3). Next, in order to estimate

the economic value of nature-related activities, participants were asked to report the amount by which their costs would have had to increase to make them decide not to participate in these activities in 1996 (see Fig. 6, C).<sup>11</sup>

The Nature Survey reveals that residents of Canada derived significant economic value from nature-related recreational activities during 1996. In total, the direct benefit that Canadians reported was valued at \$2.0 billion.

Table 3 shows the average (yearly and daily) economic values for outdoor activities in natural areas, wildlife viewing, recreational fishing and hunting (by type of hunting). While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters attached values that were larger than for other participants, at a yearly value of \$181 per participant. Outdoor activities in natural areas came second with a \$132 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$104 and \$78.

<sup>11</sup> *Estimating the value of nature-related activities: The methods used to estimate benefits and assumptions that underlie the results are detailed in a technical report (filed in Appendix 10, reference 4).*

## 5. DIRECT BENEFITS: VALUE TO PARTICIPATING CANADIANS

We have seen that nature-related activities provide significant indirect benefits to Canada's economy, but how important are these activities as a source of direct benefits to people? In other words, "How much value do Canadians place on nature-related activities?" This chapter describes the manner in which this question was addressed in the survey. It then presents the magnitude of this economic value (direct benefits) for all Canadians. Chapters 6 to 16 present the value for the residents of the 10 provinces and the Yukon.

### ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR CANADA IN 1996

	Yearly average per participant	Yearly average per capita
Outdoor activities in natural areas	132.1	8.2
Wildlife viewing <sup>1</sup>	78.4	7.0
Recreational fishing <sup>1</sup>	104.7	9.9
Hunting <sup>1,2</sup>		
Large mammals	150.0	14.9
Small mammals	71.1	6.7
Waterfowl	121.3	14.6
Other birds	73.2	8.6
All hunting	181.2	14.5

#### Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

### Economic value of nature-related activities

Measuring the economic value of nature-related activities presents a formidable challenge. On one hand, most natural areas and wildlife are common property resources — they belong to all Canadians. On the other hand, most nature-related activities are organized by the participants themselves, who generally do not have to pay a market price for these activities. Hence, there is little or no information readily available on the economic value of these nature-related activities. For these reasons, participants in the 1996 Nature Survey were asked about their willingness to pay for nature-related tourism and recreation so that an economic value could be derived — an economic value that is comparable with that of goods and services readily available in the marketplace to meet human needs. The resulting dollar amounts for natural areas and wildlife reflect direct benefits that occur outside the marketplace.

First, participants were asked how much they actually spent on nature-related activities (see Figure 6, D, and Chapter 3). Next, in order to estimate

the economic value of nature-related activities, participants were asked to report the amount by which their costs would have had to increase to make them decide not to participate in these activities in 1996 (see Fig. 6, C).<sup>11</sup>

The Nature Survey reveals that residents of Canada derived significant economic value from nature-related recreational activities during 1996. In total, the direct benefit that Canadians reported was valued at \$2.0 billion.

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<sup>11</sup> Further information on the theory of economic valuation, the methods used to estimate benefits, and assumptions that underlie the results is included in a technical report listed in Appendix III, reference 4.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$14.9 and \$14.6 per day respectively. For recreational fishing, the average daily value per participant was \$9.9. Daily averages for hunting other birds and for outdoor activities in natural areas were close with \$8.6 and \$8.2 respectively.

### **Benefits from nature-related activities in future years**

Natural areas such as forests and lakes, and the wildlife that use these areas, are renewable resources. Because they are renewable, these resources can be expected to continue to provide benefits year after year. Knowledge of the magnitude of the economic benefits derived from the enjoyment of natural assets, such as that provided in this chapter, contributes to assessing the benefits that may be lost if these assets

are degraded. This knowledge can help to demonstrate that significant returns will result from investments in actions that are aimed at sustaining Canada's biodiversity and ecosystems.

Sustainable development means leaving future generations with as many opportunities, if not more than, the previous generations had. In this context, the effective management of Canada's natural wealth will allow annual direct benefits of \$2.0 billion or more from nature-related activities to be provided to Canadians in perpetuity.

## 6. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF NEWFOUNDLAND IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Newfoundland. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Newfoundland spent \$193.7 million on nature-related activities during 1996. They spent \$120.8 million of the total on outdoor activities in natural areas (Table 4). The average participant in these activities spent \$586 during the year, or \$31 per day of participation. Wildlife viewing expenditures were estimated at \$21.4 million. On average, these

participants spent \$274, or \$13 per day of participation. Expenditures for recreational fishing amounted to \$31.7 million. The average yearly expenditure for fishing was \$230, or \$9 per day of participation. In total, Newfoundland residents spent \$41.5 million hunting wildlife in 1996. The average hunter spent \$608 during the year, or \$26 per day of participation.

Of the total expenditures, approximately \$58.7 million, or 30.0 percent, was spent on transportation used primarily for nature-related activities. Another \$57.8 million (29.8 percent) was spent on equipment, \$40.8 million (21.1 percent) on food, \$15.9 million (8.2 percent) on other items such as entry fees and \$14.5 million (7.5 percent) on accommodation. The remaining \$6.0 million (3.1 percent) was spent on contributions to nature-related organizations,

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Newfoundland? The impacts of the \$193.7 million spent by Newfoundland residents are shown in Figure 9. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$156 million to the provincial gross domestic product (GDP), and supported some 2,600 jobs. Local and provincial levels of government received over \$76 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY NEWFOUNDLAND PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Accommodation	12.7	10.5		3.7*	17.2		10.9	34.4		8.9	21.4
Transportation	37.1	30.7					6.0	18.9		5.0	12.0
Food	28.0	23.2		1.9*	8.9						
Equipment	36.4*	30.1		15.8*	73.8		9.6*	30.3		27.7*	66.8
Other items	6.6	5.5					5.3*	16.7			
Costs for other nature-related activities	—	—		—	—		—	—		—	6.0
Average yearly	\$586			\$274			\$230			\$608	
Average daily	\$31			\$13			\$9			\$26	

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 4 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

<sup>4</sup> See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>12</sup> The resulting contribution to the provincial gross domestic product amounted to \$97.1 million for outdoor activities in natural areas. Recreational fishing expenditures contributed \$25.5 million to the GDP.

How much value do residents of Newfoundland place on nature-related activities? Residents of Newfoundland derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$44.8 million, because participants stated that they would be willing to

<sup>12</sup> The sampling variability associated with the economic impacts for wildlife viewing and hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

increase their expenditures by this amount before deciding to forego these activities.

Table 5 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Newfoundland attached values that were larger than for other participants, at a yearly value of \$150 per participant. Outdoor activities in natural areas came second with \$117 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$84 and \$53.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$15.5 and \$9.7 per day

respectively. For hunting other birds, the average daily value per participant was \$6.5. The daily average for outdoor activities in natural areas was \$6.1. For both wildlife viewing and recreational fishing the daily average was \$5.9.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$44.8 million nature-related activities provide to residents of Newfoundland in perpetuity.

#### ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR NEWFOUNDLAND IN 1996

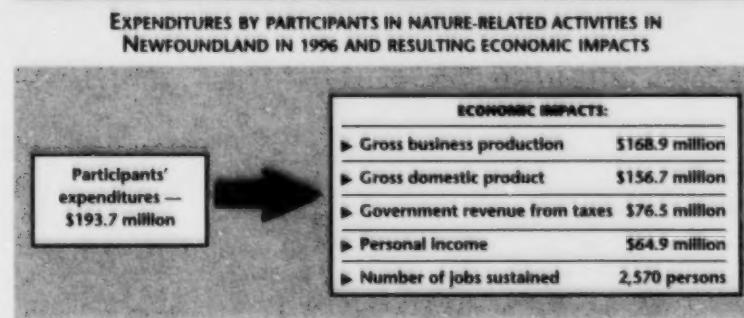
	Yearly average per participant	Daily average per day
Outdoor activities in natural areas	116.7	6.1
Wildlife viewing <sup>1</sup>	52.7	5.9
Recreational fishing <sup>1</sup>	84.3*	5.9*
Hunting <sup>1,2</sup>		
Large mammals	118.3	15.5
Small mammals	71.1*	3.8*
Waterfowl	97.0*	9.7*
Other birds	75.4*	6.5*
All hunting	150.2	11.1

##### Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.



## 6. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF NEWFOUNDLAND IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Newfoundland. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Newfoundland spent \$193.7 million on nature-related activities during 1996. They spent \$120.8 million of the total on outdoor activities in natural areas (Table 4). The average participant in these activities spent \$586 during the year, or \$31 per day of participation. Wildlife viewing expenditures were estimated at \$21.4 million. On average, these

participants spent \$274, or \$13 per day of participation. Expenditures for recreational fishing amounted to \$31.7 million. The average yearly expenditure for fishing was \$230, or \$9 per day of participation. In total, Newfoundland residents spent \$41.5 million hunting wildlife in 1996. The average hunter spent \$608 during the year, or \$26 per day of participation.

Of the total expenditures, approximately \$58.7 million, or 30.0 percent, was spent on transportation used primarily for nature-related activities. Another \$57.8 million (29.8 percent) was spent on equipment, \$40.8 million (21.1 percent) on food, \$15.9 million (8.2 percent) on other items such as entry fees and \$14.5 million (7.5 percent) on accommodation. The remaining \$6.0 million (3.1 percent) was spent on contributions to nature-related organizations.

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Newfoundland? The impacts of the \$193.7 million spent by Newfoundland residents are shown in Figure 9. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$156 million to the provincial gross domestic product (GDP), and supported some 2,600 jobs. Local and provincial levels of government received over \$76 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

TABLE 4

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY NEWFOUNDLAND PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	12.7	10.5							
Transportation	37.1	30.7	3.7*	17.2	10.9	34.4	8.9	21.4	
Food	28.0	23.2	1.9*	8.9	6.0	18.9	5.0	12.0	
Equipment	36.4*	30.1	15.8*	73.8	9.6*	30.3	27.7*	66.8	
Other items	6.6	5.5			5.3*	16.7			
Costs for other nature-related activities	—	—	—	—	—	—	—	—	6.0
<b>Total<sup>3</sup></b>	<b>\$120.8</b>	<b>100.0%</b>	<b>\$21.4*</b>	<b>100.0%</b>	<b>\$31.7</b>	<b>100.0%</b>	<b>\$41.5*</b>	<b>100.0%</b>	<b>\$6.0</b>
Average yearly	\$586		\$274		\$230		\$608		
Average daily	\$31		\$13		\$9		\$26		

Notes:

- Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 4 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- Some figures may not total perfectly because of rounding.
- See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>12</sup> The resulting contribution to the provincial gross domestic product amounted to \$97.1 million for outdoor activities in natural areas. Recreational fishing expenditures contributed \$25.5 million to the GDP.

How much value do residents of Newfoundland place on nature-related activities? Residents of Newfoundland derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$44.8 million, because participants stated that they would be willing to

The sampling exercise, completed with the economic impacts for wildlife viewing and hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.1.

FIGURE 9

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN NEWFOUNDLAND IN 1996 AND RESULTING ECONOMIC IMPACTS

Participants expenditures — \$193.7 million

ECONOMIC IMPACTS:	
► Gross business production	\$168.9 million
► Gross domestic product	\$156.7 million
► Government revenue from taxes	\$76.5 million
► Personal income	\$64.9 million
► Number of jobs sustained	2,570 persons

increase their expenditures by this amount before deciding to forego these activities.

Table 5 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Newfoundland attached values that were larger than for other participants, at a yearly value of \$150 per participant. Outdoor activities in natural areas came second with \$117 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$84 and \$53.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$15.5 and \$9.7 per day

respectively. For hunting other birds, the average daily value per participant was \$6.5. The daily average for outdoor activities in natural areas was \$6.1. For both wildlife viewing and recreational fishing the daily average was \$5.9.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$44.8 million nature-related activities provide to residents of Newfoundland in perpetuity.

TABLE 5

ECONOMIC VALUE OF NATURE RELATED ACTIVITIES FOR NEWFOUNDLAND IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	116.7	6.1
Wildlife viewing <sup>1</sup>	52.7	5.9
Recreational fishing <sup>2</sup>	84.3*	5.9*
Hunting <sup>3,4</sup>	118.3	15.5
Large mammals	71.1*	3.8*
Small mammals	97.0*	9.7*
Waterfowl	75.4*	6.5*
Other birds	150.2	6.1

Notes:

- 1. Averages for wildlife viewing, fishing, and hunting are for main activity only.
- 2. Averages for all hunting other than large mammals participants based on those that hunt other wildlife during the year.
- 3. See note on the statistical reliability of survey results in Section 1.1.

## 7. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF PRINCE EDWARD ISLAND IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Prince Edward Island. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Prince Edward Island spent \$24.6 million on nature-related activities during 1996. They spent \$16.5 million of the total on outdoor activities in natural areas (Table 6). The average participant in these activities spent \$410 during the year, or \$23 per day of participation. Wildlife viewing expenditures were estimated at \$3.1 million. On average, these

participants spent \$241, or \$10 per day of participation. Expenditures for recreational fishing amounted to \$1.5 million. The average yearly expenditure for fishing was \$114, or \$7 per day of participation. In total, Prince Edward Island residents spent \$1.9 million hunting wildlife in 1996. The average hunter spent \$502 during the year, or \$24 per day of participation.

Of the total expenditures, approximately \$6.3 million, or 25.4 percent, was spent on transportation. Another \$5.5 million (22.5 percent) was spent on equipment used primarily for nature-related activities. \$4.3 million (17.3 percent) on food, \$2.9 million (11.8 percent) on accommodation and \$1.5 million (6.3 percent) on other items such as entry fees. The remaining \$4.1 million (16.7 percent) was spent on contributions to nature-related organizations, sustaining

land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Prince Edward Island? The impacts of the \$24.6 million spent by Prince Edward Island residents are shown in Figure 10. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$26 million to the provincial gross domestic product (GDP), and supported 700 jobs. Local and provincial levels of government received \$9 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

TABLE 6

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY PRINCE EDWARD ISLAND PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	2.7	16.4							—
Transportation	4.9	29.7	0.3*	9.7	0.6	42.8	0.5*	27.0	—
Food	3.7	22.4							—
Equipment	3.9*	23.6	2.8*	90.3	0.2*	14.3	0.2*	10.4	—
Other items	1.2*	7.3			0.4*	28.6	1.2*	62.5	—
Costs for other nature-related activities	—	—	—	—	0.2*	14.3	—	—	4.1
<b>Total<sup>3</sup></b>	<b>\$16.5</b>	<b>100.0%</b>	<b>\$3.1*</b>	<b>100.0%</b>	<b>\$1.5</b>	<b>100.0%</b>	<b>\$1.9*</b>	<b>100.0%</b>	<b>\$4.1</b>
Average yearly	\$410		\$241		\$114		\$502		
Average daily	\$23		\$10		\$7		\$24		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 6 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* See note on the statistical reliability of survey results in Section 1.3.

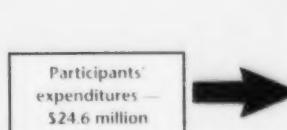
nature-related activities were derived as described in Section 4.2.<sup>13</sup> The resulting contribution to the provincial gross domestic product amounted to \$15.2 million for outdoor activities in natural areas. Recreational fishing expenditures contributed \$1.4 million to the GDP.

How much value do residents of Prince Edward Island place on nature-related activities? Residents of Prince Edward Island derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$6.9 million, because participants stated that they would be willing to

<sup>13</sup> The sampling variability associated with the economic impacts for wildlife viewing and hunting is too high to be considered reliable, and thus these impacts are not reported. See info on the statistical reliability of survey results in Section 1.3.

FIGURE 10

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN PRINCE EDWARD ISLAND IN 1996 AND RESULTING ECONOMIC IMPACTS



ECONOMIC IMPACTS:	
► Gross business production	\$37.8 million
► Gross domestic product	\$26.5 million
► Government revenue from taxes	\$9.3 million
► Personal income	\$14.2 million
► Number of jobs sustained	690 persons

increase their expenditures by this amount before deciding to forego these activities.

Table 7 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Prince Edward Island attached values that were larger than for other participants, at a yearly value of \$242 per participant. Outdoor activities in natural areas came second with \$121 yearly average per participant. Wildlife viewing and recreational fishing came third and fourth respectively with yearly averages per participant of \$75 and \$63.

With regard to the daily averages, those who hunted waterfowl derived more direct benefits than participants in any other nature-related activity with \$18.7 per day. For hunting

other birds, the average daily values were \$6.9. For outdoor activities in natural areas, the average daily value per participant was close behind at \$6.7.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$6.9 million nature-related activities provide to residents of Prince Edward Island in perpetuity.

TABLE 7

ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR PRINCE EDWARD ISLAND IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	121.4	6.7 <sup>a</sup>
Wildlife viewing <sup>b</sup>	75.1 <sup>c</sup>	5.1 <sup>c</sup>
Recreational fishing <sup>b</sup>	63.1 <sup>c</sup>	5.5 <sup>c</sup>
Hunting <sup>b</sup>		
Large mammals		
Small mammals		
Waterfowl	236.0 <sup>c</sup>	18.7 <sup>c</sup>
Other birds	59.2 <sup>c</sup>	6.9 <sup>c</sup>
All hunting	242.3 <sup>c</sup>	11.9 <sup>c</sup>

Notes:

<sup>a</sup> Average for wildlife viewing, following and hunting are for main activity only.

<sup>b</sup> Average for all hunting may seem high because many participants had more than one type of wildlife during the season.

<sup>c</sup> See note on the statistical reliability of survey results in Section 1.3.

## 7. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF PRINCE EDWARD ISLAND IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Prince Edward Island. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Prince Edward Island spent \$24.6 million on nature-related activities during 1996. They spent \$16.5 million of the total on outdoor activities in natural areas (Table 6). The average participant in these activities spent \$410 during the year, or \$23 per day of participation. Wildlife viewing expenditures were estimated at \$3.1 million. On average, these

participants spent \$241, or \$10 per day of participation. Expenditures for recreational fishing amounted to \$1.5 million. The average yearly expenditure for fishing was \$114, or \$7 per day of participation. In total, Prince Edward Island residents spent \$1.9 million hunting wildlife in 1996. The average hunter spent \$502 during the year, or \$24 per day of participation.

Of the total expenditures, approximately \$6.3 million, or 25.4 percent, was spent on transportation. Another \$5.5 million (22.5 percent) was spent on equipment used primarily for nature-related activities, \$4.3 million (17.3 percent) on food, \$2.9 million (11.8 percent) on accommodation and \$1.5 million (6.3 percent) on other items such as entry fees. The remaining \$4.1 million (16.7 percent) was spent on contributions to nature-related organizations, sustaining

land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Prince Edward Island? The impacts of the \$24.6 million spent by Prince Edward Island residents are shown in Figure 10. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$26 million to the provincial gross domestic product (GDP), and supported 700 jobs. Local and provincial levels of government received \$9 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

Table 6  
EXPENDITURES ON NATURE-RELATED ACTIVITIES BY PRINCE EDWARD ISLAND PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Accommodation	2.7	16.4		0.3*	9.7		0.6	42.8	0.5*	27.0
Transportation	4.9	29.7					0.2*	14.3	0.2*	10.4
Food	3.7	22.4		2.8*	90.3		0.4*	28.6	1.2*	52.5
Equipment	3.9*	23.6					0.2*	14.3		
Other items	1.2*	7.3								
Costs for other nature-related activities	—	—		—	—		—	—	—	4.1
<b>Total<sup>2</sup></b>	<b>\$16.5</b>	<b>100.0%</b>		<b>\$3.1*</b>	<b>100.0%</b>		<b>\$1.5</b>	<b>100.0%</b>	<b>\$1.5*</b>	<b>100.0%</b>
Average yearly	\$410			\$241			\$114		\$502	
Average daily	\$23			\$10			\$7		\$24	

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 6 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

<sup>4</sup> See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>13</sup> The resulting contribution to the provincial gross domestic product amounted to \$15.2 million for outdoor activities in natural areas. Recreational fishing expenditures contributed \$1.4 million to the GDP.

How much value do residents of Prince Edward Island place on nature-related activities? Residents of Prince Edward Island derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$6.9 million, because participants stated that they would be willing to

<sup>13</sup> The sampling variability associated with the economic impacts for wildlife viewing and hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

increase their expenditures by this amount before deciding to forego these activities.

Table 7 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Prince Edward Island attached values that were larger than for other participants, at a yearly value of \$242 per participant. Outdoor activities in natural areas came second with \$121 yearly average per participant. Wildlife viewing and recreational fishing came third and fourth respectively with yearly averages per participant of \$75 and \$63.

With regard to the daily averages, those who hunted waterfowl derived more direct benefits than participants in any other nature-related activity with \$18.7 per day. For hunting

other birds, the average daily values were \$6.9. For outdoor activities in natural areas, the average daily value per participant was close behind at \$6.7.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$6.9 million nature-related activities provide to residents of Prince Edward Island in perpetuity.

Table 7

**ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR PRINCE EDWARD ISLAND IN 1996**

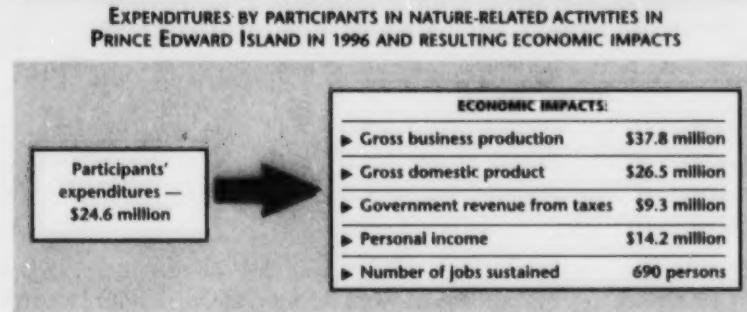
	Yearly average	Daily average
Outdoor activities in natural areas	121.4	6.7
Wildlife viewing <sup>1</sup>	75.1*	5.1*
Recreational fishing <sup>1</sup>	63.1*	5.5*
Hunting <sup>1,2</sup>		
Large mammals	...	...
Small mammals	...	...
Waterfowl	236.0*	18.7*
Other birds	59.2*	6.9*
All hunting	242.3*	13.9*

**Notes:**

- 1 Averages for wildlife viewing, fishing and hunting are for main activity only.
- 2 Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

FIGURE 10



## 8. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF NOVA SCOTIA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Nova Scotia. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived a economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Nova Scotia spent \$244.8 million on nature-related activities during 1996. They spent \$141.4 million of the total on outdoor activities in natural areas (Table 8). The average participant in these activities spent \$435 during the year, or \$25 per day of participation. Wildlife viewing expenditures were estimated at \$28.8 million. On average, these

participants spent \$221, or \$12 per day of participation. Expenditures for recreational fishing amounted to \$40.2 million. The average yearly expenditure for fishing was \$365, or \$18 per day of participation. In total, Nova Scotia residents spent \$30.6 million hunting wildlife in 1996. The average hunter spent \$512 during the year, or \$25 per day of participation.

Of the total expenditures, approximately \$76.3 million, or 31.2 percent, was spent on transportation. Another \$51.7 million (21.1 percent) was spent on equipment used primarily for nature-related activities, \$46.1 million (18.8 percent) on food, \$26.8 million (10.9 percent) on accommodation and \$15.0 million (6.1 percent) on other items such as entry fees. The remaining \$28.9 million (11.8 percent) was spent on contributions to nature-related organizations,

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Nova Scotia? The impacts of the \$244.8 million spent by Nova Scotia residents are shown in Figure 11. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$242 million to the provincial gross domestic product (GDP), and supported 4,900 jobs. Local and provincial levels of government received almost \$82 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY NOVA SCOTIA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Type of activity	Main activity		Secondary activity		Total activity		Contribution to Nova Scotia economy		Other
	1996	1995	1996	1995	1996	1995	1996	1995	
Accommodation	20.9	14.8	1.7*	5.9	...	...	10.7*	34.9	—
Transportation	44.5	31.5	5.0*	17.4	...	...	3.9*	12.7	—
Food	35.3	25.0	2.8	9.7	...	...	10.9*	35.6	—
Equipment	32.8	23.2	19.2*	66.7	...	...	5.2*	17.0	—
Other items	8.0	5.7			—	—	—	—	28.9
Costs for other nature-related activities	—	—	—	—	—	—	—	—	
Average yearly	\$435		\$221		\$365		\$512		
Average daily	\$25		\$12		\$18		\$25		

**Notes:**

- Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 8 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- Some figures may not total perfectly because of rounding.
- Since the sampling variability associated with this total is very high, the reliability is lower than for other totals and thus it should be used with caution.
- See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>14</sup> The resulting contribution to the provincial gross domestic product amounted to \$124.4 million for outdoor activities in natural areas. Wildlife viewing and hunting contributed \$25.3 million and \$27.0 million respectively to the GDP.

How much value do residents of Nova Scotia place on nature-related activities? Residents of Nova Scotia derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$63.8 million, because

<sup>14</sup> The sampling variability associated with the economic impacts for recreational fishing is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

participants stated that they would be willing to increase their expenditures by this amount before deciding to forego these activities.

Table 9 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Nova Scotia attached values that were larger than for other participants, at a yearly value of \$188 per participant. Outdoor activities in natural areas came second with \$124 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$89 and \$71.

With regard to the daily averages, those who hunted waterfowl and large mammals derived more direct benefits than

participants in any other nature-related activity with \$11.5 and \$11.0 per day respectively. Hunting small mammals and wildlife viewing both had average daily expenditures of \$7.9. Daily averages for hunting other birds and outdoor activities in natural areas were close with \$7.6 and \$7.3 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$63.8 million nature-related activities provide to residents of Nova Scotia in perpetuity.

#### ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR NOVA SCOTIA IN 1996

	Yearly average	Daily average
Outdoor activities in natural areas	124.4	7.3
Wildlife viewing <sup>1</sup>	70.9	7.9
Recreational fishing <sup>1</sup>	89.0	6.8
Hunting <sup>1,2</sup>		
Large mammals	131.0	11.0
Small mammals	91.1*	7.9*
Waterfowl	111.6*	11.5*
Other birds	74.6*	7.6*
All hunting	187.6	11.6

##### Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

#### EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN NOVA SCOTIA IN 1996 AND RESULTING ECONOMIC IMPACTS

ECONOMIC IMPACTS:	
► Gross business production	\$392.0 million
► Gross domestic product	\$242.3 million
► Government revenue from taxes	\$81.8 million
► Personal income	\$122.8 million
► Number of jobs sustained	4,850 persons

Participants' expenditures — \$244.8 million

## 8. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF NOVA SCOTIA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Nova Scotia. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived a economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Nova Scotia spent \$244.8 million on nature-related activities during 1996. They spent \$141.4 million of the total on outdoor activities in natural areas (Table 8). The average participant in these activities spent \$435 during the year, or \$25 per day of participation. Wildlife viewing expenditures were estimated at \$28.8 million. On average, these

participants spent \$221, or \$12 per day of participation. Expenditures for recreational fishing amounted to \$40.2 million. The average yearly expenditure for fishing was \$365, or \$18 per day of participation. In total, Nova Scotia residents spent \$30.6 million hunting wildlife in 1996. The average hunter spent \$512 during the year, or \$25 per day of participation.

Of the total expenditures, approximately \$76.3 million, or 31.2 percent, was spent on transportation. Another \$51.7 million (21.1 percent) was spent on equipment used primarily for nature-related activities, \$46.1 million (18.8 percent) on food, \$26.8 million (10.9 percent) on accommodation and \$15.0 million (6.1 percent) on other items such as entry fees. The remaining \$28.9 million (11.8 percent) was spent on contributions to nature-related organizations.

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Nova Scotia? The impacts of the \$244.8 million spent by Nova Scotia residents are shown in Figure 11. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$242 million to the provincial gross domestic product (GDP), and supported 4,900 jobs. Local and provincial levels of government received almost \$82 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

TABLE 8

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY NOVA SCOTIA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	20.9	14.8	1.7*	5.9	...	...	10.7*	34.9	—
Transportation	44.5	31.5	5.0*	17.4	...	...	3.9*	12.7	—
Food	35.3	25.0	2.8	9.7	...	...	10.9*	35.6	—
Equipment	32.8	23.2	19.2*	66.7	...	...	5.2*	17.0	—
Other items	8.0	5.7	—	—	—	—	—	—	28.9
Costs for other nature-related activities	—	—	—	—	—	—	—	—	—
<b>Total<sup>3</sup></b>	<b>\$141.4</b>	<b>100.0%</b>	<b>\$28.8*</b>	<b>100.0%</b>	<b>\$40.2*</b>	<b>100.0%</b>	<b>\$30.6*</b>	<b>100.0%</b>	<b>\$28.9</b>
Average yearly	\$435		\$221		\$365		\$512		
Average daily	\$25		\$12		\$18		\$25		

Notes:

- Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 8 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- Some figures may not total perfectly because of rounding.
- Since the sampling variability associated with this total is very high, the reliability is lower than for other totals and thus it should be used with caution.
- See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>11</sup> The resulting contribution to the provincial gross domestic product amounted to \$124.4 million for outdoor activities in natural areas. Wildlife viewing and hunting contributed \$25.3 million and \$27.0 million respectively to the GDP.

How much value do residents of Nova Scotia place on nature-related activities? Residents of Nova Scotia derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$63.8 million, because

participants stated that they would be willing to increase their expenditures by this amount before deciding to forego these activities.

Table 9 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Nova Scotia attached values that were larger than for other participants, at a yearly value of \$188 per participant. Outdoor activities in natural areas came second with \$124 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$89 and \$71.

participants in any other nature related activity with \$11.5 and \$11.0 per day respectively. Hunting small mammals and wildlife viewing both had average daily expenditures of \$7.9. Daily averages for hunting other birds and outdoor activities in natural areas were close with \$7.6 and \$7.3 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$63.8 million nature-related activities provide to residents of Nova Scotia in perpetuity.

TABLE 9

ECONOMIC VALUE OF  
NATURE RELATED ACTIVITIES  
FOR NOVA SCOTIA IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	124.4	7.3
Wildlife viewing <sup>1</sup>	70.9	7.9
Recreational fishing <sup>1</sup>	89.0	6.8
Hunting <sup>1,2</sup>		
Large mammals	131.0	11.0
Small mammals	91.1*	7.9*
Waterfowl	111.6*	11.5*
Other birds	74.6*	7.6*
All hunting	187.6	11.6

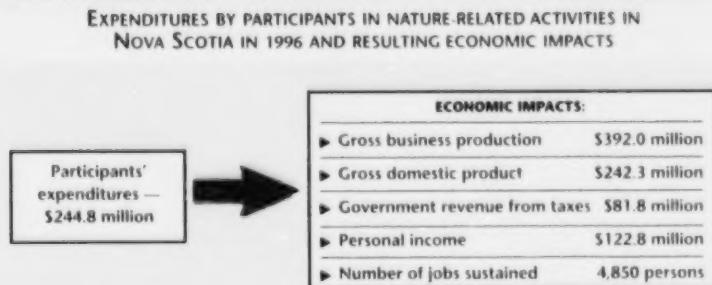
Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* see note on the statistical reliability of survey results in Section 1.3.

FIGURE 11



## 9. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF NEW BRUNSWICK IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in New Brunswick. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of New Brunswick spent \$208.2 million on nature-related activities during 1996. They spent \$116.4 million of the total on outdoor activities in natural areas (Table 10). The average participant in these activities spent \$438 during the year, or \$29 per day of participation. Wildlife viewing expenditures were estimated at \$26.2 million. On average, these

participants spent \$229, or \$13 per day of participation. Expenditures for recreational fishing amounted to \$44.0 million. The average yearly expenditure for fishing was \$429, or \$25 per day of participation. In total, New Brunswick residents spent \$32.6 million hunting wildlife in 1996. The average hunter spent \$415 during the year, or \$25 per day of participation.

Of the total expenditures, approximately \$56.9 million, or 27.3 percent, was spent on equipment used primarily for nature-related activities. Another \$49.3 million (23.7 percent) was spent on transportation, \$37.7 million (18.1 percent) on food, \$20.4 million (9.5 percent) on accommodation and \$17.7 million (5.4 percent) on other items such as entry fees. The remaining \$32.6 million (15.7 percent) was spent on contributions to nature-related organizations.

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of New Brunswick? The impacts of the \$208.2 million spent by New Brunswick residents are shown in Figure 12. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$193 million to the provincial gross domestic product (GDP), and supported 3,800 jobs. Local and provincial levels of government received \$61 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived

TABLE 10

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY NEW BRUNSWICK PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	15.4	13.2	1.2*	4.6	2.2*	5.0	1.6*	4.9	—
Transportation	33.4	28.7	2.7*	10.3	5.6*	12.7	7.6	23.3	—
Food	26.5	22.8	1.9	7.3	29.1*	66.1	—	—	—
Equipment	34.2*	29.4	20.4*	77.8	7.2*	16.4	23.5*	72.1	—
Other items	6.9*	5.9	—	—	—	—	—	—	32.6*
Costs for other nature-related activities	—	—	—	—	—	—	—	—	—
<b>Total<sup>3</sup></b>	<b>\$116.4</b>	<b>100.0%</b>	<b>\$26.2*</b>	<b>100.0%</b>	<b>\$44.0*</b>	<b>100.0%</b>	<b>\$32.6*</b>	<b>100.0%</b>	<b>\$32.6*</b>
Average yearly	\$438		\$229		\$429		\$415		
Average daily	\$29		\$13		\$25		\$25		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 10 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* See note on the statistical reliability of survey results in Section 1.3.

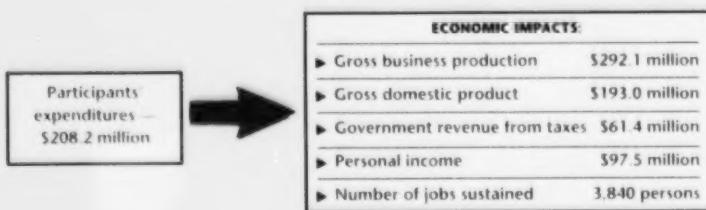
as described in Section 4.2.<sup>11</sup> The resulting contribution to the provincial gross domestic product amounted to \$95.1 million for outdoor activities in natural areas. Wildlife viewing and recreational fishing expenditures contributed \$21.4 million and \$36.0 respectively.

How much value do residents of New Brunswick place on nature-related activities? Residents of New Brunswick derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 3.1. The enjoyment is worth an estimated \$49.2 million, because participants stated that they would be willing to increase their

The survey estimates associated with the economic impacts for hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

FIGURE 12

EXPENDITURES BY PARTICIPANTS IN NATURE RELATED ACTIVITIES IN NEW BRUNSWICK IN 1996 AND RESULTING ECONOMIC IMPACTS



expenditures by this amount before deciding to forego these activities.

Table 11 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in New Brunswick attached values that were larger than for other participants, at a yearly value of \$139 per participant. Outdoor activities in natural areas came second with \$110 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$88 and \$56.

With regard to the daily averages, those who hunted waterfowl and hunted large mammals derived more direct benefits than participants in any other nature-related activity with \$14.3 and \$12.4 per day respectively. For

recreational fishing, the average daily value per participant was \$8.8. Daily averages for hunting other birds and outdoor activities in natural areas were close with \$8.0 and \$7.4 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$49.2 million nature-related activities provide to residents of New Brunswick in perpetuity.

TABLE 11

ECONOMIC VALUE OF NATURE RELATED ACTIVITIES FOR NEW BRUNSWICK IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	110.4	7.4
Wildlife viewing <sup>1</sup>	56.1	6.1
Recreational fishing <sup>2</sup>	87.6*	8.8*
Hunting <sup>3</sup>		
Large mammals	110.0	12.4
Small mammals	46.4*	4.8*
Waterfowl	100.6*	14.3*
Other birds	64.5*	8.0*
All hunting	139.3	12.5

Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of vertebrate during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

## 9. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF NEW BRUNSWICK IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in New Brunswick. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of New Brunswick spent \$208.2 million on nature-related activities during 1996. They spent \$116.4 million of the total on outdoor activities in natural areas (Table 10). The average participant in these activities spent \$438 during the year, or \$29 per day of participation. Wildlife viewing expenditures were estimated at \$26.2 million. On average, these

participants spent \$229, or \$13 per day of participation. Expenditures for recreational fishing amounted to \$44.0 million. The average yearly expenditure for fishing was \$429, or \$25 per day of participation. In total, New Brunswick residents spent \$32.6 million hunting wildlife in 1996. The average hunter spent \$415 during the year, or \$25 per day of participation.

Of the total expenditures, approximately \$56.9 million, or 27.3 percent, was spent on equipment used primarily for nature-related activities. Another \$49.3 million (23.7 percent) was spent on transportation, \$37.7 million (18.1 percent) on food, \$20.4 million (9.8 percent) on accommodation and \$11.3 million (5.4 percent) on other items such as entry fees. The remaining \$32.6 million (15.7 percent) was spent on contributions to nature-related organizations,

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of New Brunswick? The impacts of the \$208.2 million spent by New Brunswick residents are shown in Figure 12. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$193 million to the provincial gross domestic product (GDP), and supported 3,800 jobs. Local and provincial levels of government received \$61 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY NEW BRUNSWICK PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

	Accommodation	Transportation	Food	Equipment	Other items	Costs for other nature-related activities	Average yearly	Average daily
Accommodation	15.4	13.2		1.2*	4.6		1.6*	4.9
Transportation	33.4	28.7		2.7*	10.3		7.6	23.3
Food	26.5	22.8		1.9	7.3		—	—
Equipment	34.2*	29.4		20.4*	77.8	29.1*	66.1	—
Other items	6.9*	5.9				7.2*	16.4	—
Costs for other nature-related activities	—	—	—	—	—	—	—	32.6*
Average yearly	\$438	\$29		\$229	\$13		\$429	\$25
Average daily								

Notes:

- 1 Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 10 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- 2 Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- 3 Some figures may not total perfectly because of rounding.
- 4 See note on the statistical reliability of survey results in Section 1.3.

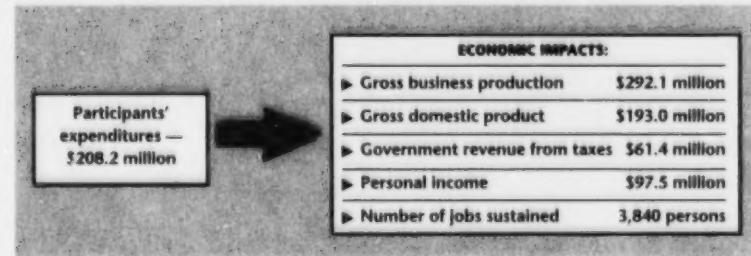
as described in Section 4.2.<sup>15</sup> The resulting contribution to the provincial gross domestic product amounted to \$95.1 million for outdoor activities in natural areas. Wildlife viewing and recreational fishing expenditures contributed \$21.4 million and \$36.0 respectively.

How much value do residents of New Brunswick place on nature-related activities? Residents of New Brunswick derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$49.2 million, because participants stated that they would be willing to increase their

<sup>15</sup> The sampling variability associated with the economic impacts for hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

FIGURE 1.2

### EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN NEW BRUNSWICK IN 1996 AND RESULTING ECONOMIC IMPACTS



expenditures by this amount before deciding to forego these activities.

Table 11 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in New Brunswick attached values that were larger than for other participants, at a yearly value of \$139 per participant. Outdoor activities in natural areas came second with \$110 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$88 and \$56.

With regard to the daily averages, those who hunted waterfowl and hunted large mammals derived more direct benefits than participants in any other nature-related activity with \$14.3 and \$12.4 per day respectively. For

recreational fishing, the average daily value per participant was \$8.8. Daily averages for hunting other birds and outdoor activities in natural areas were close with \$8.0 and \$7.4 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$49.2 million nature-related activities provide to residents of New Brunswick in perpetuity.

TABLE 11

### ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR NEW BRUNSWICK IN 1996

ACTIVITIES	AVERAGE DAILY VALUE (\$)	
	YEAR	DAY
Outdoor activities in natural areas	110.4	7.4
Wildlife viewing <sup>1</sup>	56.1	6.1
Recreational fishing <sup>1</sup>	87.6*	8.8*
Hunting <sup>1,2</sup>		
Large mammals	110.0	12.4
Small mammals	46.4*	4.8*
Waterfowl	100.6*	14.3*
Other birds	64.5*	8.0*
All hunting	139.3	12.5

Notes:

- 1 Averages for wildlife viewing, fishing and hunting are for main activity only.
- 2 Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.
- \* See note on the statistical reliability of survey results in Section 1.3.

## 10. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF QUEBEC IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Quebec. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Quebec spent \$2.1 billion on nature-related activities during 1996. They spent \$1.2 billion of the total on outdoor activities in natural areas (Table 12). The average participant in these activities spent \$531 during the year, or \$34 per day of participation. Wildlife viewing expenditures were estimated at \$281.0 million. On

average, these participants spent \$239, or \$17 per day of participation. Expenditures for recreational fishing amounted to \$392.0 million. The average yearly expenditure for fishing was \$378, or \$29 per day of participation. In total, Quebec residents spent \$285.6 million hunting wildlife in 1996. The average hunter spent \$726 during the year, or \$50 per day of participation.

Of the total expenditures, approximately \$579.3 million, or 28.1 percent, was spent on equipment used primarily for nature-related activities. Another \$417.8 million (20.3 percent) was spent on transportation, \$400.8 million (19.4 percent) on food, \$317.4 million (15.4 percent) on accommodation and \$112.3 million (5.4 percent) on other items such as entry fees. The

remaining \$233.1 million (11.3 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Quebec? The impacts of the \$2.1 billion spent by Quebec residents are shown in Figure 13. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$2.3 billion to the provincial gross domestic product (GDP), and supported 45,200 jobs. Local and provincial levels of government received over \$723 million in revenue from diverse taxes.

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY QUEBEC PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

	1	2	3	4	5	6	7	8	9	10	11
Accommodation	231.3	19.1	18.3*	6.5	52.8	13.5	15.0	5.3	—	—	—
Transportation	283.2	23.4	29.6	10.5	71.2	18.2	33.8	11.8	—	—	—
Food	283.3	23.4	25.0	8.9	64.1	16.4	28.3	9.9	—	—	—
Equipment	349.4	28.8	132.6*	47.2	156.7*	40.0	173.0*	60.6	—	—	—
Other items	64.5	5.3	75.4*	26.8	47.1	12.0	35.6*	12.5	—	—	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	—	—	233.1*
Average yearly	\$531		\$239		\$378		\$726				
Average daily	\$34		\$17		\$29		\$50				

Notes:

1 Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 12 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

2 Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

3 Some figures may not total perfectly because of rounding.

4 See note on the statistical reliability of survey results in Section 1.3.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived as described in Section 4.2. The resulting contribution to the provincial gross domestic product amounted to \$1.4 billion for outdoor activities in natural areas. Wildlife viewing expenditures contributed \$321.2 million to the GDP. Recreational fishing and hunting contributed \$446.4 million and \$325.4 million respectively.

How much value do residents of Quebec place on nature-related activities? Residents of Quebec derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$290 million, because participants stated that they would be willing to increase their

expenditures by this amount before deciding to forego these activities.

Table 13 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Quebec attached values that were larger than for other participants, at a yearly value of \$137 per participant. Outdoor activities in natural areas came second with \$78 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$66 and \$46.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$13.4 and \$11.2 per day respectively. For

recreational fishing, the average daily value per participant was \$7.6. Daily averages for wildlife viewing and for hunting other birds were close with \$5.8 and \$5.7 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$290 million nature-related activities provide to residents of Quebec in perpetuity.

#### EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN QUEBEC IN 1996 AND RESULTING ECONOMIC IMPACTS

Participants' expenditures — \$2,060.7 million

ECONOMIC IMPACTS:		
► Gross business production	\$3,675.2 million	
► Gross domestic product	\$2,318.4 million	
► Government revenue from taxes	\$723.9 million	
► Personal income	\$1,254.1 million	
► Number of jobs sustained	45,240 persons	

#### TABLE 13 ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR QUEBEC IN 1996

Outdoor activities in natural areas	77.7	5.0
Wildlife viewing <sup>1</sup>	46.2	5.8
Recreational fishing <sup>1</sup>	66.1	7.6
Hunting <sup>1,2</sup>		
Large mammals	127.4	13.4
Small mammals	37.1*	4.0*
Waterfowl	99.3*	11.2*
Other birds	48.1	5.7
All hunting	136.8	11.6

##### Notes:

- 1 Averages for wildlife viewing, fishing and hunting are for main activity only.
- 2 Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.
- \* See note on the statistical reliability of survey results in Section 1.3.

## 10. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF QUEBEC IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Quebec. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Quebec spent \$2.1 billion on nature-related activities during 1996. They spent \$1.2 billion of the total on outdoor activities in natural areas (Table 12). The average participant in these activities spent \$531 during the year, or \$34 per day of participation. Wildlife viewing expenditures were estimated at \$281.0 million. On

average, these participants spent \$239, or \$17 per day of participation. Expenditures for recreational fishing amounted to \$392.0 million. The average yearly expenditure for fishing was \$378, or \$29 per day of participation. In total, Quebec residents spent \$285.6 million hunting wildlife in 1996. The average hunter spent \$726 during the year, or \$50 per day of participation.

Of the total expenditures, approximately \$579.3 million, or 28.1 percent, was spent on equipment used primarily for nature-related activities. Another \$417.8 million (20.3 percent) was spent on transportation, \$400.8 million (19.4 percent) on food, \$317.4 million (15.4 percent) on accommodation and \$112.3 million (5.4 percent) on other items such as entry fees. The

remaining \$233.1 million (11.3 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Quebec? The impacts of the \$2.1 billion spent by Quebec residents are shown in Figure 13. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$2.3 billion to the provincial gross domestic product (GDP), and supported 45,200 jobs. Local and provincial levels of government received over \$723 million in revenue from diverse taxes.

TABLE 12

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY QUEBEC PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	231.3	19.1	18.3*	6.5	52.8	13.5	15.0	5.3	—
Transportation	283.2	23.4	29.6	10.5	71.2	18.2	33.8	11.8	—
Food	283.3	23.4	25.0	8.9	64.1	16.4	28.3	9.9	—
Equipment	349.4	28.8	132.6*	47.2	156.7*	40.0	173.0*	60.6	—
Other items	64.5	5.3	75.4*	26.8	47.1	12.0	35.6*	12.5	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	233.1*
<b>Total<sup>3</sup></b>	<b>\$1,211.7</b>	<b>100.0%</b>	<b>\$281.0</b>	<b>100.0%</b>	<b>\$392.0</b>	<b>100.0%</b>	<b>\$285.6*</b>	<b>100.0%</b>	<b>\$233.1*</b>
Average yearly	\$531		\$239		\$378		\$726		
Average daily	\$34		\$17		\$29		\$50		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 12 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* See note on the statistical reliability of survey results in Section 1.3.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived as described in Section 4.2. The resulting contribution to the provincial gross domestic product amounted to \$1.4 billion for outdoor activities in natural areas. Wildlife viewing expenditures contributed \$321.2 million to the GDP. Recreational fishing and hunting contributed \$446.4 million and \$325.4 million respectively.

How much value do residents of Quebec place on nature-related activities? Residents of Quebec derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$290 million, because participants stated that they would be willing to increase their

expenditures by this amount before deciding to forego these activities.

Table 13 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Quebec attached values that were larger than for other participants, at a yearly value of \$137 per participant. Outdoor activities in natural areas came second with \$78 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$66 and \$46.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$13.4 and \$11.2 per day respectively. For

recreational fishing, the average daily value per participant was \$7.6. Daily averages for wildlife viewing and for hunting other birds were close with \$5.8 and \$5.7 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$290 million nature-related activities provide to residents of Quebec in perpetuity.

TABLE 13

ECONOMIC VALUE OF  
NATURE-RELATED ACTIVITIES  
FOR QUEBEC IN 1996

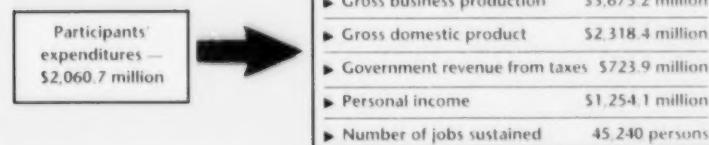
Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	77.7	5.0
Wildlife viewing <sup>a</sup>	46.2	5.8
Recreational fishing <sup>a</sup>	66.1	7.6
Hunting <sup>a, b</sup>		
Large mammals	127.4	13.4
Small mammals	37.1*	4.0*
Waterfowl	99.3*	11.2*
Other birds	48.1	5.7
All hunting	116.8	11.6

Notes

- <sup>a</sup> Average for wildlife viewing, fishing and hunting are for main activity only.
- <sup>b</sup> Average for all hunting that occur from fall to spring. Many participants hunt more than one type of wildlife during this season.
- \* See note on the definition of residence of survey respondent in Section 5.3.

FIGURE 13

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN  
QUEBEC IN 1996 AND RESULTING ECONOMIC IMPACTS



## 11. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF ONTARIO IN 1996

In 1996, considerable economic benefits resulted from nature related activities in Ontario. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Ontario spent \$4.3 billion on nature-related activities during 1996. They spent almost \$2.9 billion of the total on outdoor activities in natural areas (Table 14). The average participant in these activities spent \$735 during the year, or \$49 per day of participation. Wildlife viewing expenditures were estimated at \$410.9 million.

On average, these participants spent \$263, or \$16 per day of participation. Expenditures for recreational fishing amounted to \$762.2 million. The average yearly expenditure for fishing was \$496, or \$28 per day of participation. In total, Ontario residents spent \$200.6 million hunting wildlife in 1996. The average hunter spent \$639 during the year, or \$37 per day of participation.

Of the total expenditures, approximately \$1,136.1 million, or 26.5 percent, was spent on equipment used primarily for nature-related activities. Another \$991.7 million (23.2 percent) was spent on transportation, \$756.4 million (17.7 percent) on food, \$598.8 million (14.0 percent) on accommodation and \$218.9 million (5.1 percent) on other items such as entry fees. The remaining

\$581.5 million (13.6 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Ontario? The impacts of the \$4.3 billion spent by Ontario residents are shown in Figure 14. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$4.5 billion to the provincial gross domestic product (GDP), and supported 77,900 jobs. Local and provincial levels of government received over \$1.4 billion in revenue from diverse taxes.

TABLE 14

### EXPENDITURES ON NATURE-RELATED ACTIVITIES BY ONTARIO PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	489.7	17.2	28.1*	6.8	67.8	8.9	13.2	6.6	
Transportation	757.4	26.6	58.7	14.3	130.6	17.1	45.0	22.4	
Food	606.3	21.3	36.2	8.8	85.6	11.2	28.4	14.2	
Equipment	843.3	29.6	287.9*	70.0	398.2*	52.2	64.1*	32.0	
Other items	154.3	5.4			80.1	10.5	49.8*	24.8	
Costs for other nature-related activities	—	—	—	—	—	—	—	—	581.5*
<b>Total<sup>3</sup></b>	<b>\$2,851.0</b>	<b>100.0%</b>	<b>\$410.9*</b>	<b>100.0%</b>	<b>\$762.2*</b>	<b>100.0%</b>	<b>\$200.6</b>	<b>100.0%</b>	<b>\$581.5*</b>
Average yearly	\$735		\$263		\$496		\$639		
Average daily	\$49		\$16		\$28		\$37		

Notes

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 14 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* See note on the statistical reliability of survey results in Section 1.3.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived as described in Section 4.2. The resulting contribution to the provincial gross domestic product amounted to \$2.8 billion for outdoor activities in natural areas. Wildlife viewing expenditures contributed \$410.5 million to the GDP. Recreational fishing and hunting contributed \$761.9 million and \$199.7 million respectively.

How much value do residents of Ontario place on nature-related activities? Residents of Ontario derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$807.1 million, because participants stated that they would be willing to increase their expenditures

by this amount before deciding to forego these activities.

Table 15 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Ontario attached values that were larger than for other participants, at a yearly value of \$220 per participant. Outdoor activities in natural areas came second with \$147 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$122 and \$88.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$19.9 and \$16.2 per day respectively. Those hunting small

mammals and hunting other birds both had an average daily expenditure of \$11.6. The average daily value per participant for recreational fishing was \$10.8, followed by those participating in outdoor activities in natural areas at \$9.7.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$807.1 million nature-related activities provide to residents of Ontario in perpetuity.

TABLE 15

ECONOMIC VALUE OF  
NATURE-RELATED ACTIVITIES  
FOR ONTARIO IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	146.6	9.7
Wildlife viewing <sup>1</sup>	88.4	7.5
Recreational fishing	122.3	10.8
Hunting <sup>2</sup>		
Large mammals	178.1	19.9
Small mammals	99.6*	11.6*
Waterfowl	121.3	16.2
Other birds	86.6	11.6
All hunting	219.7	17.9

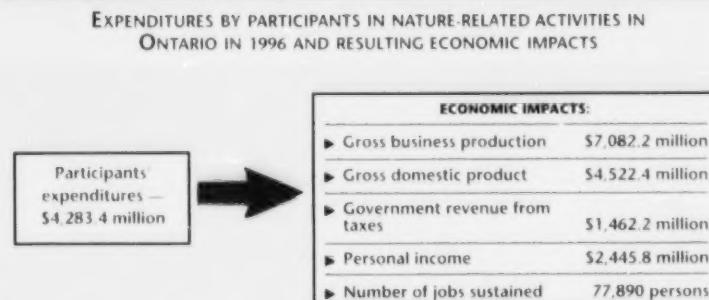
Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

FIGURE 14



## 11. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF ONTARIO IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Ontario. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Ontario spent \$4.3 billion on nature-related activities during 1996. They spent almost \$2.9 billion of the total on outdoor activities in natural areas (Table 14). The average participant in these activities spent \$735 during the year, or \$49 per day of participation. Wildlife viewing expenditures were estimated at \$410.9 million.

On average, these participants spent \$263, or \$16 per day of participation. Expenditures for recreational fishing amounted to \$762.2 million. The average yearly expenditure for fishing was \$496, or \$28 per day of participation. In total, Ontario residents spent \$200.6 million hunting wildlife in 1996. The average hunter spent \$639 during the year, or \$37 per day of participation.

Of the total expenditures, approximately \$1,136.1 million, or 26.5 percent, was spent on equipment used primarily for nature-related activities. Another \$991.7 million (23.2 percent) was spent on transportation, \$756.4 million (17.7 percent) on food, \$598.8 million (14.0 percent) on accommodation and \$218.9 million (5.1 percent) on other items such as entry fees. The remaining

\$581.5 million (13.6 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Ontario? The impacts of the \$4.3 billion spent by Ontario residents are shown in Figure 14. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$4.5 billion to the provincial gross domestic product (GDP), and supported 77,900 jobs. Local and provincial levels of government received over \$1.4 billion in revenue from diverse taxes.

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY ONTARIO PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

	Accommodation	Transportation	Food	Equipment	Other items	Costs for other nature-related activities					
Accommodation	489.7	17.2	28.1*	6.8	67.8	8.9	13.2	6.6	—	—	—
Transportation	757.4	26.6	58.7	14.3	130.6	17.1	45.0	22.4	—	—	—
Food	606.3	21.3	36.2	8.8	85.6	11.2	28.4	14.2	—	—	—
Equipment	843.3	29.6			398.2*	52.2	64.1*	32.0	—	—	—
Other items	154.3	5.4			80.1	10.5	49.8*	24.8	—	—	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	—	—	581.5*
Average yearly	\$735			\$263			\$496				
Average daily	\$49			\$16			\$28				

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 14 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

<sup>4</sup> See note on the statistical reliability of survey results in Section 1.3.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived as described in Section 4.2. The resulting contribution to the provincial gross domestic product amounted to \$2.8 billion for outdoor activities in natural areas. Wildlife viewing expenditures contributed \$410.5 million to the GDP. Recreational fishing and hunting contributed \$761.9 million and \$199.7 million respectively.

How much value do residents of Ontario place on nature-related activities? Residents of Ontario derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$807.1 million, because participants stated that they would be willing to increase their expenditures

by this amount before deciding to forego these activities.

Table 15 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Ontario attached values that were larger than for other participants, at a yearly value of \$220 per participant. Outdoor activities in natural areas came second with \$147 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$122 and \$88.

With regard to the daily averages, those who hunted large mammals and waterfowl derived more direct benefits than participants in any other nature-related activity with \$19.9 and \$16.2 per day respectively. Those hunting small

mammals and hunting other birds both had an average daily expenditure of \$11.6. The average daily value per participant for recreational fishing was \$10.8, followed by those participating in outdoor activities in natural areas at \$9.7.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$807.1 million nature-related activities provide to residents of Ontario in perpetuity.

#### ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR ONTARIO IN 1996

	Yearly average	Daily average
Outdoor activities in natural areas	146.6	9.7
Wildlife viewing <sup>1</sup>	88.4	7.5
Recreational fishing <sup>1</sup>	122.3	10.8
Hunting <sup>1,2</sup>		
Large mammals	178.1	19.9
Small mammals	99.6*	11.6*
Waterfowl	121.3	16.2
Other birds	86.6	11.6
All hunting	219.7	17.9

##### Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

#### EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN ONTARIO IN 1996 AND RESULTING ECONOMIC IMPACTS

Participants' expenditures — \$4,283.4 million

ECONOMIC IMPACTS:	
► Gross business production	\$7,082.2 million
► Gross domestic product	\$4,522.4 million
► Government revenue from taxes	\$1,462.2 million
► Personal income	\$2,445.8 million
► Number of jobs sustained	77,890 persons

## 12. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF MANITOBA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Manitoba. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Manitoba spent \$427.6 million on nature-related activities during 1996. They spent \$295.7 million of the total on outdoor activities in natural areas (Table 16). The average participant in these activities spent \$730 during the year, or \$44 per day of participation. Wildlife viewing expenditures were estimated at \$42.7 million. On average, these participants spent \$261, or

\$15 per day of participation. Expenditures for recreational fishing amounted to \$124.0 million. The average yearly expenditure for fishing was \$729, or \$41 per day of participation. In total, Manitoba residents spent \$24.8 million hunting wildlife in 1996. The average hunter spent \$584 during the year, or \$38 per day of participation.

Of the total expenditures, approximately \$163.1 million, or 38.1 percent, was spent on equipment used primarily for nature-related activities. Another \$94.5 million (22.1 percent) was spent on transportation, \$81.0 million (18.9 percent) on food, \$46.9 million (11.0 percent) on accommodation and \$21.0 million (4.9 percent) on other items such as entry fees. The remaining \$21.1 million (4.9 percent) was spent on contributions to nature-related organizations, sustaining land for

conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Manitoba? The impacts of the \$427.6 million spent by Manitoba residents are shown in Figure 15. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed almost \$406 million to the provincial gross domestic product (GDP), and supported 8,700 jobs. Local and provincial levels of government received \$142 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

Table 16

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY MANITOBA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

	Accommodation	Transportation	Food	Equipment	Other items	Costs for other nature-related activities	Average yearly	Average daily	
Accommodation	41.4	14.0	...	...	...	...	0.6*	2.4	—
Transportation	71.4	24.1	...	...	...	...	4.9	19.8	—
Food	66.6	22.5	...	...	...	...	2.6	10.5	—
Equipment	101.5	34.3	...	...	...	...	13.0*	52.4	—
Other items	14.7	5.0	...	...	...	...	3.6*	14.5	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	21.1
Average yearly	\$730	\$44	\$15	\$261	\$15	\$15	\$584	\$38	\$38
Average daily									

Notes:

1 Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 16 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

2 Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

3 Some figures may not total perfectly because of rounding.

4 Since the sampling variability associated with this total is very high, the reliability is lower than for other totals and thus it should be used with caution.

...\* See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>16</sup> The resulting contribution to the provincial gross domestic product amounted to \$272.5 million for outdoor activities in natural areas. Hunting expenditures contributed \$22.8 million to the GDP.

How much value do residents of Manitoba place on nature-related activities? Residents of Manitoba derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$83.3 million, because participants stated that they would be

willing to increase their expenditures by this amount before deciding to forego these activities.

Table 17 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Manitoba attached values that were larger than for other participants, at a yearly value of \$182 per participant. Outdoor activities in natural areas came second with \$144 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$123 and \$69.

with \$20.2 per day. For hunting waterfowl and recreational fishing, the average daily values per participant were \$14.9 and \$14.6 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$83.3 million nature-related activities provided to residents of Manitoba in perpetuity.

Table 17

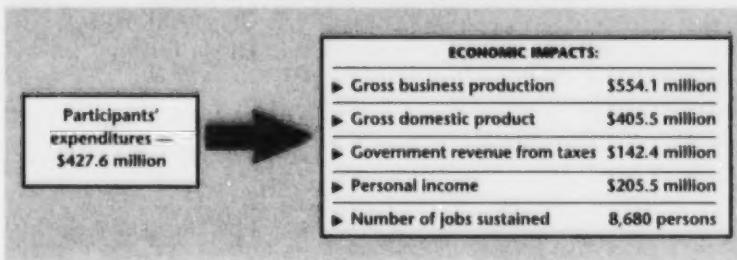
**ECONOMIC VALUE OF  
NATURE-RELATED ACTIVITIES  
FOR MANITOBA IN 1996**

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	143.5	8.7
Wildlife viewing <sup>1</sup>	68.6	7.2
Recreational fishing <sup>1</sup>	123.0	14.6
Hunting <sup>1,2</sup>		
Large mammals	142.8	20.2
Small mammals	56.9*	10.1*
Waterfowl	115.5*	14.9*
Other birds	...	...
All hunting	181.7	18.8

With regard to the daily averages, those who hunted large mammals derived more direct benefits than participants in any other nature-related activity

FIGURE 15

**EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN MANITOBA IN 1996 AND RESULTING ECONOMIC IMPACTS**



Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

## 12. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF MANITOBA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Manitoba. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Manitoba spent \$427.6 million on nature-related activities during 1996. They spent \$295.7 million of the total on outdoor activities in natural areas (Table 16). The average participant in these activities spent \$730 during the year, or \$44 per day of participation. Wildlife viewing expenditures were estimated at \$42.7 million. On average, these participants spent \$261, or

\$15 per day of participation. Expenditures for recreational fishing amounted to \$124.0 million. The average yearly expenditure for fishing was \$729, or \$41 per day of participation. In total, Manitoba residents spent \$24.8 million hunting wildlife in 1996. The average hunter spent \$584 during the year, or \$38 per day of participation.

Of the total expenditures, approximately \$163.1 million, or 38.1 percent, was spent on equipment used primarily for nature-related activities. Another \$94.5 million (22.1 percent) was spent on transportation, \$81.0 million (18.9 percent) on food, \$46.9 million (11.0 percent) on accommodation and \$21.0 million (4.9 percent) on other items such as entry fees. The remaining \$21.1 million (4.9 percent) was spent on contributions to nature-related organizations, sustaining land for

conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Manitoba? The impacts of the \$427.6 million spent by Manitoba residents are shown in Figure 15. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed almost \$406 million to the provincial gross domestic product (GDP), and supported 8,700 jobs. Local and provincial levels of government received \$142 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

TABLE 16

### EXPENDITURES ON NATURE-RELATED ACTIVITIES BY MANITOBA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	41.4	14.0	...	...	...	...	0.6*	2.4	—
Transportation	71.4	24.1	...	...	...	...	4.9	19.8	—
Food	66.6	22.5	...	...	...	...	2.6	10.5	—
Equipment	101.5	34.3	...	...	...	...	13.0*	52.4	—
Other items	14.7	5.0	...	...	...	...	3.6*	14.5	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	21.1
<b>Total<sup>3</sup></b>	<b>\$295.7</b>	<b>100.0%</b>	<b>\$42.7*</b>	<b>100.0%</b>	<b>\$124.0*</b>	<b>100.0%</b>	<b>\$24.8*</b>	<b>100.0%</b>	<b>\$21.1</b>
Average yearly	\$730		\$261		\$729		\$584		
Average daily	\$44		\$15		\$41		\$38		

Notes:

- Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 16 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- Some figures may not total perfectly because of rounding.
- Since the sampling variability associated with this total is very high, the reliability is lower than for other totals and thus it should be used with caution.
- See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>10</sup> The resulting contribution to the provincial gross domestic product amounted to \$272.5 million for outdoor activities in natural areas. Hunting expenditures contributed \$22.8 million to the GDP.

How much value do residents of Manitoba place on nature-related activities? Residents of Manitoba derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$83.3 million, because participants stated that they would be

The accounting methodology associated with the economic impacts for wildlife viewing and recreational hunting is often difficult to be considered roughly, and thus these impacts are not measured. See notes to the statistical reliability of survey results in Section 1.1.

FIGURE 15

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN MANITOBA IN 1996 AND RESULTING ECONOMIC IMPACTS

Participants' expenditures — \$427.6 million



ECONOMIC IMPACTS:	
► Gross business production	\$554.1 million
► Gross domestic product	\$405.5 million
► Government revenue from taxes	\$142.4 million
► Personal income	\$205.5 million
► Number of jobs sustained	8 680 persons

willing to increase their expenditures by this amount before deciding to forego these activities.

Table 17 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Manitoba attached values that were larger than for other participants, at a yearly value of \$182 per participant. Outdoor activities in natural areas came second with \$144 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$123 and \$69.

With regard to the daily averages, those who hunted large mammals derived more direct benefits than participants in any other nature-related activity.

With \$20.2 per day, For hunting water fowl and recreational fishing, the average daily values per participant were \$14.9 and \$14.6 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$83.3 million nature-related activities provide to residents of Manitoba in perpetuity.

TABLE 17

ECONOMIC VALUE OF NATURE RELATED ACTIVITIES FOR MANITOBA IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	143.5	8.7
Wildlife viewing	68.6	7.2
Recreational fishing	123.0	14.6
Hunting <sup>a</sup>		
Large mammals	142.8	20.2
Small mammals	56.9*	10.1*
Watertowl	115.5*	14.9*
Other birds		
All hunting	181.7	18.8

Notes

<sup>a</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

Average for all hunting may seem high because many participants had more than one type of wildlife during the winter.

\* See notes on the statistical reliability of survey results in Section 1.1.

## 13. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF SASKATCHEWAN IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Saskatchewan. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Saskatchewan spent \$387.8 million on nature-related activities during 1996. They spent \$263.7 million of the total on outdoor activities in natural areas (Table 18). The average participant in these activities spent \$763 during the year, or \$19 per day of participation. Wildlife viewing expenditures were estimated at \$39.3 million. On average, these

participants spent \$344, or \$17 per day of participation. Expenditures for recreational fishing amounted to \$95.4 million. The average yearly expenditure for fishing was \$557, or \$29 per day of participation. In total, Saskatchewan residents spent \$33.7 million hunting wildlife in 1996. The average hunter spent \$723 during the year, or \$45 per day of participation.

Of the total expenditures, approximately \$137.8 million, or 35.5 percent, was spent on equipment used primarily for nature-related activities. Another \$92.1 million (23.8 percent) was spent on transportation, \$66.5 million (17.2 percent) on food, \$46.4 million (12.0 percent) on accommodation and \$22.7 million (5.9 percent) on other items such as entry fees. The remaining \$22.2 million (5.7 percent) was spent on contributions to nature-related

organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Saskatchewan? The impacts of the \$387.8 million spent by Saskatchewan residents are shown in Figure 16. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$374 million to the provincial gross domestic product (GDP), and supported 7,800 jobs. Local and provincial levels of government received \$112 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

TABLE 18

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY SASKATCHEWAN PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	37.3	14.1			5.7	6.0	1.0*	3.0	—
Transportation	63.3	24.0	6.7*	17.0	15.5	16.2	9.0	26.7	—
Food	50.8	19.3			9.2	9.6	4.4*	13.1	—
Equipment	97.0	36.8	32.6*	83.0	65.0*	68.2	19.3*	57.2	—
Other items	15.3	5.8							22.2
Costs for other nature-related activities	—	—	—	—	—	—	—	—	
<b>Total<sup>3</sup></b>	<b>\$263.7</b>	<b>100.0%</b>	<b>\$39.3*</b>	<b>100.0%</b>	<b>\$95.4*</b>	<b>100.0%</b>	<b>\$33.7*</b>	<b>100.0%</b>	<b>\$22.2</b>
Average yearly	\$763		\$344		\$557		\$723		
Average daily	\$49		\$17		\$29		\$45		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 18 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* See note on the statistical reliability of survey results in Section 1.3.

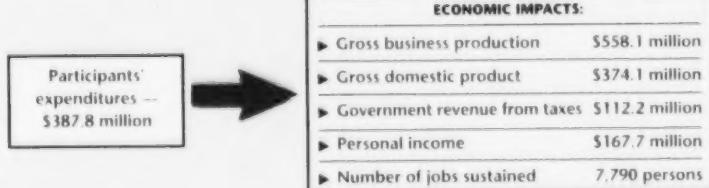
nature-related activities were derived as described in Section 4.2.<sup>17</sup> The resulting contribution to the provincial gross domestic product amounted to \$208.5 million for outdoor activities in natural areas. Recreational fishing and hunting contributed \$75.5 million and \$26.6 million respectively to the GDP.

How much value do residents of Saskatchewan place on nature-related activities? Residents of Saskatchewan derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$72.2 million, because participants stated that they would be willing to increase their

<sup>17</sup> The sampling variability associated with the economic impacts for wildlife viewing is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

FIGURE 16

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN SASKATCHEWAN IN 1996 AND RESULTING ECONOMIC IMPACTS



expenditures by this amount before deciding to forego these activities.

Table 19 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Saskatchewan attached values that were larger than for other participants, at a yearly value of \$164 per participant. Outdoor activities in natural areas came second with \$143 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$109 and \$97.

With regard to the daily averages, those who hunted waterfowl and hunters of other birds derived more direct benefits than participants in any other nature-related activity with \$18.0 and \$12.4 per day respectively. For hunting large mammals, the average daily value per

participant was \$11.4. Daily averages for recreational fishing and outdoor activities in natural areas were close with \$10.7 and \$9.1 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$72.2 million nature-related activities provide to residents of Saskatchewan in perpetuity.

TABLE 19

ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR SASKATCHEWAN IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	142.7	9.1
Wildlife viewing <sup>1</sup>	97.3	5.9
Recreational fishing <sup>1</sup>	109.0*	10.7*
Hunting <sup>1,2</sup>		
Large mammals	115.5*	11.4*
Small mammals		
Waterfowl	129.0*	18.0*
Other birds	94.1*	12.4*
All hunting	163.9	13.9

Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

## 13. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF SASKATCHEWAN IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Saskatchewan. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Saskatchewan spent \$387.8 million on nature-related activities during 1996. They spent \$263.7 million of the total on outdoor activities in natural areas (Table 18). The average participant in these activities spent \$763 during the year, or \$49 per day of participation. Wildlife viewing expenditures were estimated at \$39.3 million. On average, these

participants spent \$344, or \$17 per day of participation. Expenditures for recreational fishing amounted to \$95.4 million. The average yearly expenditure for fishing was \$557, or \$29 per day of participation. In total, Saskatchewan residents spent \$33.7 million hunting wildlife in 1996. The average hunter spent \$723 during the year, or \$45 per day of participation.

Of the total expenditures, approximately \$137.8 million, or 35.5 percent, was spent on equipment used primarily for nature-related activities. Another \$92.1 million (23.8 percent) was spent on transportation, \$66.5 million (17.2 percent) on food, \$46.4 million (12.0 percent) on accommodation and \$22.7 million (5.9 percent) on other items such as entry fees. The remaining \$22.2 million (5.7 percent) was spent on contributions to nature-related

organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Saskatchewan? The impacts of the \$387.8 million spent by Saskatchewan residents are shown in Figure 16. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed \$374 million to the provincial gross domestic product (GDP), and supported 7,800 jobs. Local and provincial levels of government received \$112 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of

Table 18  
EXPENDITURES ON NATURE-RELATED ACTIVITIES BY SASKATCHEWAN PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

	Accommodation	Transportation	Food	Equipment	Other items	Costs for other nature-related activities					
Accommodation	37.3	14.1					5.7	6.0	1.0*	3.0	—
Transportation	63.3	24.0					15.5	16.2	9.0	26.7	—
Food	50.8	19.3					9.2	9.6	4.4*	13.1	—
Equipment	97.0	36.8					65.0*	68.2	19.3*	57.2	—
Other items	15.3	5.8					—	—	—	—	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	—	22.2	—
Average yearly	\$763	\$49					\$557	\$29		\$723	\$45
Average daily											

Notes:

- 1 Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 18 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- 2 Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- 3 Some figures may not total perfectly because of rounding.
- 4 See note on the statistical reliability of survey results in Section 1.3.

nature-related activities were derived as described in Section 4.2.<sup>17</sup> The resulting contribution to the provincial gross domestic product amounted to \$208.5 million for outdoor activities in natural areas. Recreational fishing and hunting contributed \$75.5 million and \$26.6 million respectively to the GDP.

How much value do residents of Saskatchewan place on nature-related activities? Residents of Saskatchewan derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$72.2 million, because participants stated that they would be willing to increase their

expenditures by this amount before deciding to forego these activities.

Table 19 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Saskatchewan attached values that were larger than for other participants, at a yearly value of \$164 per participant. Outdoor activities in natural areas came second with \$143 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$109 and \$97.

With regard to the daily averages, those who hunted waterfowl and hunters of other birds derived more direct benefits than participants in any other nature-related activity with \$18.0 and \$12.4 per day respectively. For hunting large mammals, the average daily value per

participant was \$11.4. Daily averages for recreational fishing and outdoor activities in natural areas were close with \$10.7 and \$9.1 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$72.2 million nature-related activities provide to residents of Saskatchewan in perpetuity.

Table 19

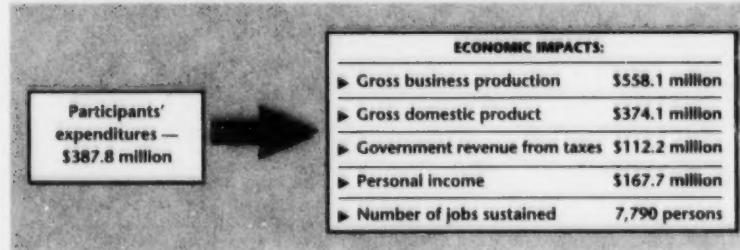
**ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR SASKATCHEWAN IN 1996**

Nature-related activity	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	142.7	9.1
Wildlife viewing <sup>1</sup>	97.3	5.9
Recreational fishing <sup>1</sup>	109.0*	10.7*
Hunting <sup>1,2</sup>		
Large mammals	115.5*	11.4*
Small mammals	...	...
Waterfowl	129.0*	18.0*
Other birds	94.1*	12.4*
All hunting	163.9	13.9

<sup>17</sup> The sampling variability associated with the economic impacts for wildlife viewing is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

Figure 16

**EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN SASKATCHEWAN IN 1996 AND RESULTING ECONOMIC IMPACTS**



**Notes:**

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

...\* See note on the statistical reliability of survey results in Section 1.3.

## 14. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF ALBERTA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Alberta. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Alberta spent \$1.2 billion on nature-related activities during 1996. They spent \$901.7 million of the total on outdoor activities in natural areas (Table 20). The average participant in these activities spent \$836 during the year, or \$56 per day of participation. Wildlife viewing expenditures were estimated at \$171.6 million.

On average, these participants spent \$433, or \$23 per day of participation. Expenditures for recreational fishing amounted to \$147.8 million. The average yearly expenditure for fishing was \$409, or \$22 per day of participation. In total, Alberta residents spent \$71.0 million hunting wildlife in 1996. The average hunter spent \$843 during the year, or \$51 per day of participation.

Of the total expenditures, approximately \$349.2 million, or 29.8 percent, was spent on equipment used primarily for nature-related activities. Another \$300.0 million (25.6 percent) was spent on transportation, \$223.3 million (19.1 percent) on food, \$149.0 million (12.7 percent) on accommodation and \$79.3 million (6.8 percent) on other items such as entry fees. The remaining

\$70.2 million (6.0 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Alberta? The impacts of the \$1.2 billion spent by Alberta residents are shown in Figure 17. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$1.5 billion to the provincial gross domestic product (GDP), and supported 23,600 jobs. Local and provincial levels of government received \$360 million in revenue from diverse taxes.

Table 20

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY ALBERTA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing		Recreational fishing		Hunting wildlife		Other nature-related activities <sup>1</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	135.3	15.0	4.4*	2.6	7.4	5.0	1.8*	2.5	—
Transportation	229.0	25.4	15.8	9.2	35.0	23.7	20.2	28.5	—
Food	183.2	20.3	9.5	5.5	23.5	15.9	7.2	10.1	—
Equipment	293.6	32.6	142.0*	82.7	50.9	34.4	29.0*	40.8	—
Other items	60.5*	6.7	—	—	31.0*	21.0	13.0*	18.3	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	70.2*
<b>Total</b>	<b>\$901.7</b>	<b>100.0%</b>	<b>\$171.6*</b>	<b>100.0%</b>	<b>\$147.8</b>	<b>100.0%</b>	<b>\$71.0</b>	<b>100.0%</b>	<b>\$70.2*</b>
Average yearly	\$836		\$433		\$409		\$843		
Average daily	\$56		\$23		\$22		\$51		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 20 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

<sup>4</sup> See note on the statistical reliability of survey results in Section 1.3.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived as described in Section 4.2. The resulting contribution to the provincial gross domestic product amounted to \$899.8 million for outdoor activities in natural areas. Wildlife viewing expenditures contributed \$171.4 million to the GDP. Recreational fishing and hunting contributed \$147.2 million and \$71.4 million respectively.

How much value do residents of Alberta place on nature-related activities? Residents of Alberta derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$219.4 million, because participants stated that they would be willing to

increase their expenditures by this amount before deciding to forego these activities.

Table 21 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Alberta attached values that were larger than for other participants, at a yearly value of \$184 per participant. Outdoor activities in natural areas came second with \$153 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$118 and \$104.

With regard to the daily averages, those who hunted waterfowl, large mammals and other birds derived more direct benefits than participants in any other nature-related activity with \$18.3,

\$12.3 and \$11.4 per day respectively. Daily averages for recreational fishing and for outdoor activities in natural areas were close with \$10.7 and \$10.2 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$219.4 million nature-related activities provide to residents of Alberta in perpetuity.

TABLE 21

ECONOMIC VALUE OF  
NATURE-RELATED ACTIVITIES  
FOR ALBERTA IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	153.3	10.2
Wildlife viewing <sup>1</sup>	104.3	6.6
Recreational fishing <sup>1</sup>	118.3	10.7
Hunting <sup>1,2</sup>		
Large mammals	137.4	12.3
Small mammals	61.8*	6.1*
Waterfowl	149.0*	18.3*
Other birds	104.6*	11.4*
All hunting	184.4	15.2

Notes:

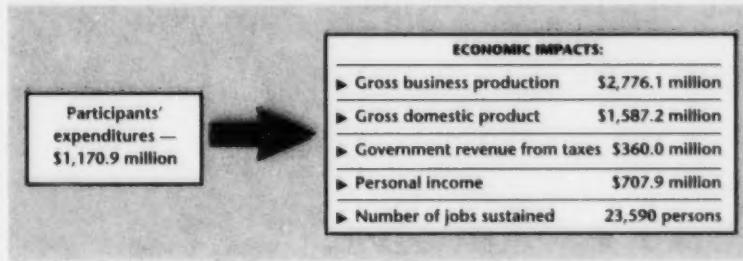
<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

FIGURE 17

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN ALBERTA IN 1996 AND RESULTING ECONOMIC IMPACTS



## 14. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF ALBERTA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in Alberta. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of Alberta spent \$1.2 billion on nature-related activities during 1996. They spent \$901.7 million of the total on outdoor activities in natural areas (Table 20). The average participant in these activities spent \$836 during the year, or \$56 per day of participation. Wildlife viewing expenditures were estimated at \$171.6 million.

On average, these participants spent \$433, or \$23 per day of participation. Expenditures for recreational fishing amounted to \$147.8 million. The average yearly expenditure for fishing was \$409, or \$22 per day of participation. In total, Alberta residents spent \$71.0 million hunting wildlife in 1996. The average hunter spent \$843 during the year, or \$51 per day of participation.

Of the total expenditures, approximately \$349.2 million, or 29.8 percent, was spent on equipment used primarily for nature-related activities. Another \$300.0 million (25.6 percent) was spent on transportation, \$223.3 million (19.1 percent) on food, \$149.0 million (12.7 percent) on accommodation and \$79.3 million (6.8 percent) on other items such as entry fees. The remaining

\$70.2 million (6.0 percent) was spent on contributions to nature-related organizations, sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of Alberta? The impacts of the \$1.2 billion spent by Alberta residents are shown in Figure 17. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$1.5 billion to the provincial gross domestic product (GDP), and supported 23,600 jobs. Local and provincial levels of government received \$360 million in revenue from diverse taxes.

TABLE 20

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY ALBERTA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	135.3	15.0	4.4*	2.6	7.4	5.0	1.8*	2.5	
Transportation	229.0	25.4	15.8	9.2	35.0	23.7	20.2	28.5	
Food	183.2	20.3	9.5	5.5	24.5	15.9	7.2	10.3	
Equipment	293.6	32.6			50.9	34.4	29.0*	40.8	
Other items	60.5*	6.7	142.0*	82.7	31.0*	21.0	13.0*	18.3	
Costs for other nature-related activities									70.2*
<b>Total<sup>3</sup></b>	<b>\$901.7</b>	<b>100.0%</b>	<b>\$171.6*</b>	<b>100.0%</b>	<b>\$147.8</b>	<b>100.0%</b>	<b>\$71.0</b>	<b>100.0%</b>	<b>\$70.2*</b>
Average yearly	\$836		\$413		\$409		\$843		
Average daily	\$56		\$23		\$22		\$51		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, monitoring, trapping and hunting are for main and secondary activities combined as described in Section 2.3. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 20 without duplication. See Appendix B for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on monitoring, restocking or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* Data from the statistical reliability of survey results in Section 1.3.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived as described in Section 4.2. The resulting contribution to the provincial gross domestic product amounted to \$899.8 million for outdoor activities in natural areas. Wildlife viewing expenditures contributed \$171.4 million to the GDP. Recreational fishing and hunting contributed \$147.2 million and \$71.4 million respectively.

How much value do residents of Alberta place on nature-related activities? Residents of Alberta derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$219.4 million, because participants stated that they would be willing to

increase their expenditures by this amount before deciding to forego these activities.

Table 21 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in Alberta attached values that were larger than for other participants, at a yearly value of \$184 per participant. Outdoor activities in natural areas came second with \$153 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$118 and \$104.

With regard to the daily averages, those who hunted waterfowl, large mammals and other birds derived more direct benefits than participants in any other nature-related activity with \$18.3.

\$12.3 and \$11.4 per day respectively. Daily averages for recreational fishing and for outdoor activities in natural areas were close with \$10.7 and \$10.2 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$219.4 million nature-related activities provide to residents of Alberta in perpetuity.

TABLE 21

ECONOMIC VALUE OF  
NATURE RELATED ACTIVITIES  
FOR ALBERTA IN 1996

Nature related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	153.8	10.2
Wildlife viewing	104.3	6.8
Recreational fishing	118.1	10.7
Hunting <sup>a</sup>		
Large mammals	137.4	12.3
Small mammals	61.8 <sup>b</sup>	6.1 <sup>b</sup>
Waterfowl	149.0 <sup>c</sup>	10.2 <sup>c</sup>
Other birds	104.6 <sup>c</sup>	11.4 <sup>c</sup>
All hunting	184.4	15.2

Notes:

<sup>a</sup> Averages for wildlife viewing, fishing and hunting are for 1996 only.

<sup>b</sup> Averages for all hunting. Only small mammals derive more participants from those that hunt large mammals during the season.

<sup>c</sup> See note on the definition regarding fishing from Section 5.1.

FIGURE 17

EXPENDITURES BY PARTICIPANTS IN NATURE RELATED ACTIVITIES IN  
ALBERTA IN 1996 AND RESULTING ECONOMIC IMPACTS

ECONOMIC IMPACTS:	
► Gross business production	\$2,776.1 million
► Gross domestic product	\$1,587.2 million
► Government revenue from taxes	\$360.0 million
► Personal income	\$707.9 million
► Number of jobs sustained	23,590 persons

## 15. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF BRITISH COLUMBIA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in British Columbia. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of British Columbia spent \$1.9 billion on nature-related activities during 1996. They spent \$1.3 billion of the total on outdoor activities in natural areas (Table 22). The average participant in these activities spent \$902 during the year, or \$45 per day of participation. Wildlife viewing expenditures were estimated at \$268.5 million. On average, these participants spent

\$420, or \$18 per day of participation. Expenditures for recreational fishing amounted to \$293.0 million. The average yearly expenditure for fishing was \$545, or \$29 per day of participation. In total, British Columbia residents spent \$99.5 million hunting wildlife in 1996. The average hunter spent \$1,017 during the year, or \$50 per day of participation.

Of the total expenditures, approximately \$571.1 million, or 29.5 percent, was spent on equipment used primarily for nature-related activities. Another \$479.2 million (24.7 percent) was spent on transportation, \$350.4 million (18.1 percent) on food, \$172.2 million (8.9 percent) on accommodation and \$140.7 million (7.3 percent) on other items such as entry fees. The remaining \$224.4 million (11.6 percent) was spent on contributions to nature-related organizations, sustaining land for

conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of British Columbia? The impacts of the \$1.9 billion spent by British Columbia residents are shown in Figure 18. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$1.8 billion to the provincial gross domestic product (GDP), and supported 34,100 jobs. Local and provincial levels of government received \$618 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived

TABLE 22

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY BRITISH COLUMBIA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife <sup>1</sup>		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	146.4	11.1	7.8*	2.9	15.2	5.2	2.8*	2.8	—
Transportation	357.0	27.1	30.3	11.3	63.4	21.6	28.5	28.6	—
Food	280.0	21.3	—	—	39.0	13.3	13.8	13.9	—
Equipment	416.9	31.7	230.5*	85.8	137.9*	47.1	54.4*	54.7	—
Other items	115.9*	8.8	—	—	37.5*	12.8	—	—	224.4*
<b>Total<sup>3</sup></b>	<b>\$1,316.3</b>	<b>100.0%</b>	<b>\$268.5*</b>	<b>100.0%</b>	<b>\$293.0</b>	<b>100.0%</b>	<b>\$99.5*</b>	<b>100.0%</b>	<b>\$224.4*</b>
Average yearly	\$902		\$420		\$545		\$1,017		
Average daily	\$45		\$18		\$29		\$50		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 22 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

\* See note on the statistical reliability of survey results in Section 1.3.

as described in Section 4.2.<sup>18</sup> The resulting contribution to the provincial gross domestic product amounted to \$1.2 billion for outdoor activities in natural areas. Recreational fishing and hunting contributed \$259.0 million and \$87.9 million respectively to the GDP.

How much value do residents of British Columbia place on nature-related activities? Residents of British Columbia derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$342.1 million, because participants stated that they would be willing to

increase their expenditures by this amount before deciding to forego these activities.

Table 23 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in British Columbia attached values that were larger than for other participants, at a yearly value of \$271 per participant. Outdoor activities in natural areas came second with \$165 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$139 and \$107.

with \$14.4 per day. For recreational fishing, the average daily value per participant was \$12.2. Daily averages for outdoor activities in natural areas was next with \$8.2.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$342.1 million nature-related activities provide to residents of British Columbia in perpetuity.

TABLE 23

ECONOMIC VALUE OF  
NATURE RELATED ACTIVITIES FOR  
BRITISH COLUMBIA IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	165.3	8.2
Wildlife viewing <sup>1</sup>	106.6	7.6
Recreational fishing <sup>2</sup>	139.1	12.2
Hunting <sup>1,2</sup>	226.6	14.4
Large mammals		
Small mammals		
Waterfowl		
Other birds	92.7*	7.3*
All hunting	271.2	17.8

Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

FIGURE 18

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN BRITISH COLUMBIA IN 1996 AND RESULTING ECONOMIC IMPACTS

Participants' expenditures — \$1,938.0 million

ECONOMIC IMPACTS:	
► Gross business production	\$2,669.2 million
► Gross domestic product	\$1,828.3 million
► Government revenue from taxes	\$618.4 million
► Personal income	\$984.5 million
► Number of jobs sustained	34,100 persons

## 15. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF BRITISH COLUMBIA IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in British Columbia. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of British Columbia spent \$1.9 billion on nature-related activities during 1996. They spent \$1.3 billion of the total on outdoor activities in natural areas (Table 22). The average participant in these activities spent \$902 during the year, or \$45 per day of participation. Wildlife viewing expenditures were estimated at \$268.5 million. On average, these participants spent

\$420, or \$18 per day of participation. Expenditures for recreational fishing amounted to \$293.0 million. The average yearly expenditure for fishing was \$545, or \$29 per day of participation. In total, British Columbia residents spent \$99.5 million hunting wildlife in 1996. The average hunter spent \$1,017 during the year, or \$50 per day of participation.

Of the total expenditures, approximately \$571.1 million, or 29.5 percent, was spent on equipment used primarily for nature-related activities. Another \$479.2 million (24.7 percent) was spent on transportation, \$350.4 million (18.1 percent) on food, \$172.2 million (8.9 percent) on accommodation and \$140.7 million (7.3 percent) on other items such as entry fees. The remaining \$224.4 million (11.6 percent) was spent on contributions to nature-related organizations, sustaining land for

conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of British Columbia? The impacts of the \$1.9 billion spent by British Columbia residents are shown in Figure 18. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$1.8 billion to the provincial gross domestic product (GDP), and supported 34,100 jobs. Local and provincial levels of government received \$618 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived

TABLE 22

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY BRITISH COLUMBIA PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Contribution of nature-related activities to total expenditure		Wildlife viewing		Recreational fishing <sup>1</sup>		Hunting wildlife		Other nature-related activities <sup>2</sup>	
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	\$ million	%
Accommodation	146.4	11.1	7.8*	2.9	15.2	5.2	2.8*	2.8	—	—
Transportation	357.0	27.1	30.3	11.3	63.4	21.6	28.5	28.6	—	—
Food	280.0	21.3	—	—	39.0	13.3	13.8	13.9	—	—
Equipment	416.9	31.7	230.5*	85.8	137.9*	47.1	54.4*	54.7	—	—
Other items	115.9*	8.8	—	—	37.5*	12.8	—	—	—	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	224.4*	—
<b>Total<sup>3</sup></b>	<b>\$1,316.3</b>	<b>100.0%</b>	<b>\$268.5*</b>	<b>100.0%</b>	<b>\$293.0</b>	<b>100.0%</b>	<b>\$39.3*</b>	<b>100.0%</b>	<b>\$224.4*</b>	
Average yearly	\$902		\$420		\$545		\$1,017			
Average daily	\$45		\$18		\$29		\$50			

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 22 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

<sup>4</sup> See note on the statistical reliability of survey results in Section 1.3.

as described in Section 4.2.<sup>18</sup> The resulting contribution to the provincial gross domestic product amounted to \$1.2 billion for outdoor activities in natural areas. Recreational fishing and hunting contributed \$259.0 million and \$87.9 million respectively to the GDP.

How much value do residents of British Columbia place on nature-related activities? Residents of British Columbia derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$342.1 million, because participants stated that they would be willing to

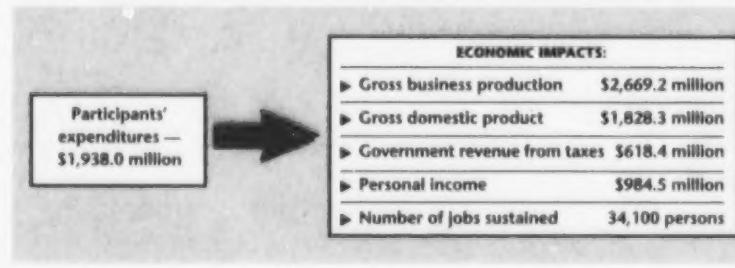
increase their expenditures by this amount before deciding to forego these activities.

Table 23 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in British Columbia attached values that were larger than for other participants, at a yearly value of \$271 per participant. Outdoor activities in natural areas came second with \$165 yearly average per participant. Recreational fishing and wildlife viewing came third and fourth respectively with yearly averages per participant of \$139 and \$107.

<sup>18</sup> The sampling variability associated with the economic impacts for wildlife viewing is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

FIGURE 18

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN BRITISH COLUMBIA IN 1996 AND RESULTING ECONOMIC IMPACTS



with \$14.4 per day. For recreational fishing, the average daily value per participant was \$12.2. Daily averages for outdoor activities in natural areas was next with \$8.2.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$342.1 million nature-related activities provide to residents of British Columbia in perpetuity.

TABLE 23

ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR BRITISH COLUMBIA IN 1996

Nature-related activities	Average Value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	165.3	8.2
Wildlife viewing <sup>1</sup>	106.6	7.6
Recreational fishing <sup>1</sup>	139.1	12.2
Hunting <sup>1,2</sup>		
Large mammals	226.6	14.4
Small mammals	...	...
Waterfowl	...	...
Other birds	92.7*	7.3*
All hunting	271.2	17.8

Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

## 16. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF THE YUKON IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in the Yukon. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of the Yukon spent \$16.0 million on nature-related activities during 1996. They spent \$11.6 million of the total on outdoor activities in natural areas (Table 24). The average participant in these activities spent \$1,298 during the year, or \$55 per day of participation. Wildlife viewing expenditures were estimated at \$8.2 million. On average,

these participants spent \$1,494, or \$59 per day of participation. Expenditures for recreational fishing amounted to \$3.1 million. The average yearly expenditure for fishing was \$485, or \$25 per day of participation. In total, Yukon residents spent \$2.0 million hunting wildlife in 1996. The average hunter spent \$901 during the year, or \$46 per day of participation.

Of the total expenditures, approximately \$6.0 million, or 37.5 percent, was spent on equipment used primarily for nature-related activities. Another \$4.6 million (28.8 percent) was spent on transportation, \$2.7 million (16.7 percent) on food, \$0.9 million (5.6 percent) on accommodation and \$1.0 million (6.4 percent) on other items such as entry fees. The remaining \$0.8 million (5.0 percent) was spent on contributions to nature-related organizations,

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of the Yukon? The impacts of the \$16.0 million spent by Yukon residents are shown in Figure 19. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$11 million to the provincial gross domestic product (GDP), and supported 200 jobs. Local and provincial levels of government received over \$3 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived

100-24

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY YUKON PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>2</sup>		Hunting <sup>3</sup>		Other nature-related activities <sup>4</sup>	
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	\$ million	%
Accommodation	0.8	6.9	...	...	0.6	22.6	...	...	...	—
Transportation	3.5	30.2	...	...	...	—	...	...	...	—
Food	2.0	17.2	...	...	0.4	12.9	...	...	...	—
Equipment	5.3*	46.6	...	...	1.6*	51.6	...	...	...	—
Other items	—	—	...	...	0.4*	12.9	...	...	...	—
Costs for other nature-related activities	—	—	—	—	—	—	—	—	—	0.8*
<b>Total<sup>5</sup></b>	<b>\$11.6</b>	<b>100.0%</b>	<b>\$8.2<sup>6</sup></b>	<b>100.0%</b>	<b>\$3.1</b>	<b>100.0%</b>	<b>\$2.0<sup>6</sup></b>	<b>100.0%</b>	<b>\$0.8<sup>6</sup></b>	<b>100.0%</b>
Average yearly	\$1,298		\$1,494		\$485		\$901			
Average daily	\$55		\$59		\$25		\$46			

Notes:

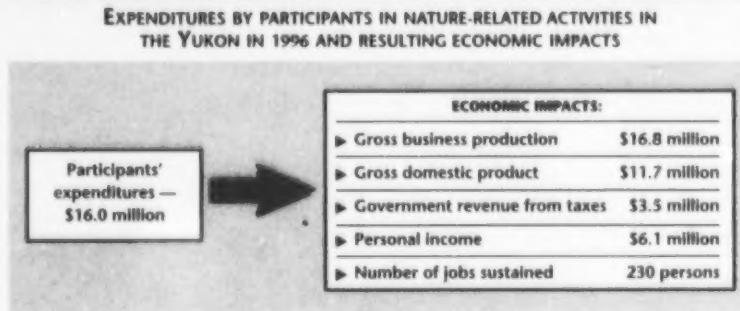
- 1 Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 24 without duplication. See Appendix II for guidelines on comparing these results with those from previous surveys.
- 2 Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.
- 3 Some figures may not total perfectly because of rounding.
- 4 Since the sampling variability associated with this total is very high, the reliability is lower than for other totals and thus it should be used with caution.
- 5 See note on the statistical reliability of survey results in Section 1.3.

as described in Section 4.2.<sup>19</sup> The resulting contribution to the provincial gross domestic product amounted to \$8.3 million for outdoor activities in natural areas. Recreational fishing expenditures contributed \$2.2 million to the GDP.

How much value do residents of the Yukon place on nature-related activities? Residents of the Yukon derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$2.6 million, because participants stated that they would be willing to increase their

<sup>19</sup> The sampling variability associated with the economic impacts for wildlife viewing and hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.3.

FIGURE 10



expenditures by this amount before deciding to forego these activities.

Table 25 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in the Yukon attached values that were larger than for other participants, at a yearly value of \$211 per participant. Outdoor activities in natural areas came second with \$179 yearly average per participant. Wildlife viewing and recreational fishing came third and fourth respectively with yearly averages per participant of \$120 and \$108.

With regard to the daily averages, those who hunted large mammals derived more direct benefits than participants in any other nature-related activity with \$18.8. Daily averages for recrea-

tional fishing and outdoor activities in natural areas were next with \$9.5 and \$7.6 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$2.6 million nature-related activities provide to residents of the Yukon in perpetuity.

TABLE 25

**ECONOMIC VALUE OF NATURE-RELATED ACTIVITIES FOR THE YUKON IN 1996**

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	178.5	7.6
Wildlife viewing <sup>1</sup>	119.7	7.1
Recreational fishing <sup>1</sup>	108.2*	9.5*
Hunting <sup>1,2</sup>		
Large mammals	196.2*	18.8*
Small mammals	...	...
Waterfowl	...	...
Other birds	...	...
All hunting	211.3	20.8

Notes:

<sup>1</sup> Averages for wildlife viewing, fishing and hunting are for main activity only.

<sup>2</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.3.

## 16. ECONOMIC BENEFITS OF NATURE-RELATED ACTIVITIES FOR RESIDENTS OF THE YUKON IN 1996

In 1996, considerable economic benefits resulted from nature-related activities in the Yukon. The money spent by those who engaged in nature-related activities and the significant economic impacts generated as a result of these expenditures, are presented in this chapter. Participants in nature-related activities derived an economic value above and beyond the money they spent to take part in them. This economic value is also presented.

Residents of the Yukon spent \$16.0 million on nature-related activities during 1996. They spent \$11.6 million of the total on outdoor activities in natural areas (Table 24). The average participant in these activities spent \$1,298 during the year, or \$55 per day of participation. Wildlife viewing expenditures were estimated at \$8.2 million. On average,

these participants spent \$1,494, or \$59 per day of participation. Expenditures for recreational fishing amounted to \$3.1 million. The average yearly expenditure for fishing was \$485, or \$25 per day of participation. In total, Yukon residents spent \$2.0 million hunting wildlife in 1996. The average hunter spent \$901 during the year, or \$46 per day of participation.

Of the total expenditures, approximately \$6.0 million, or 37.5 percent, was spent on equipment used primarily for nature-related activities. Another \$4.6 million (28.8 percent) was spent on transportation, \$2.7 million (16.7 percent) on food, \$0.9 million (5.6 percent) on accommodation and \$1.0 million (6.4 percent) on other items such as entry fees. The remaining \$0.8 million (5.0 percent) was spent on contributions to nature-related organizations.

sustaining land for conservation and residential wildlife-related activities.

What are the economic impacts that result from participation in nature-related activities by residents of the Yukon? The impacts of the \$16.0 million spent by Yukon residents are shown in Figure 19. They were estimated using the most recent Statistics Canada Interprovincial Input-Output Model and according to procedures described in Section 4.2. Nature-related expenditures contributed over \$11 million to the provincial gross domestic product (GDP), and supported 200 jobs. Local and provincial levels of government received over \$3 million in revenue from diverse taxes.

The economic impacts resulting from expenditures on selected types of nature-related activities were derived

TABLE 24

EXPENDITURES ON NATURE-RELATED ACTIVITIES BY YUKON PARTICIPANTS IN 1996, BY TYPE OF ACTIVITY

Category of expenditure	Outdoor activities in natural areas		Wildlife viewing <sup>1</sup>		Recreational fishing <sup>1</sup>		Hunting wildlife		Other nature-related activities <sup>2</sup>
	\$ million	%	\$ million	%	\$ million	%	\$ million	%	
Accommodation	0.8	6.9							
Transportation	3.5	30.2							
Food	2.0	17.2							
Equipment									
Other items									
Costs for other nature-related activities									0.8*
<b>Total<sup>3</sup></b>	<b>\$11.6</b>	<b>100.0%</b>	<b>\$8.2<sup>4</sup></b>		<b>\$3.1</b>	<b>100.0%</b>	<b>\$2.0*</b>	<b>100.0%</b>	<b>\$0.8**</b>
Average yearly	\$1,298		\$1,494		\$485		\$901		
Average daily	\$55		\$59		\$25		\$46		

Notes:

<sup>1</sup> Expenditures for wildlife viewing, recreational fishing and hunting are for main and secondary activities combined as described in Section 2.1. Due to the manner in which the secondary expenditures were calculated, it is not possible to add up the expenditures on activities shown in Table 24 without duplication. See Appendix 6 for guidelines on comparing these results with those from previous surveys.

<sup>2</sup> Costs for other nature-related activities include expenditures on maintaining, restoring or purchasing land for conservation, nature-related organizations and residential wildlife-related activities. Data on these activities were not broken down by expenditure category.

<sup>3</sup> Some figures may not total perfectly because of rounding.

<sup>4</sup> Since the sampling variability associated with this total is very high, the reliability is lower than for other totals and thus it should be used with caution.

\* See note on the statistical reliability of survey results in Section 1.3.

as described in Section 4.2.<sup>10</sup> The resulting contribution to the provincial gross domestic product amounted to \$8.3 million for outdoor activities in natural areas. Recreational fishing expenditures contributed \$2.2 million to the GDP.

How much value do residents of the Yukon place on nature-related activities? Residents of the Yukon derived significant economic value from their participation in nature-related recreation during 1996. This value was estimated according to procedures described in Section 5.1. The enjoyment is worth an estimated \$2.6 million, because participants stated that they would be willing to increase their

<sup>10</sup> The sampling variability associated with the economic impacts for wildlife viewing and hunting is too high to be considered reliable, and thus these impacts are not reported. See note on the statistical reliability of survey results in Section 1.8.

FIGURE 19

EXPENDITURES BY PARTICIPANTS IN NATURE-RELATED ACTIVITIES IN THE YUKON IN 1996 AND RESULTING ECONOMIC IMPACTS

Participants' expenditures — \$16.0 million



ECONOMIC IMPACTS:	
► Gross business production	\$16.8 million
► Gross domestic product	\$11.7 million
► Government revenue from taxes	\$3.5 million
► Personal income	\$6.1 million
► Number of jobs sustained	230 persons

expenditures by this amount before deciding to forego these activities.

Table 25 shows average yearly and daily economic values for different types of activities. While outdoor activities in natural areas provided the largest share of the total value, on a per capita basis, hunters in the Yukon attached values that were larger than for other participants, at a yearly value of \$211 per participant. Outdoor activities in natural areas came second with \$179 yearly average per participant. Wildlife viewing and recreational fishing came third and fourth respectively with yearly averages per participant of \$120 and \$108.

With regard to the daily averages, those who hunted large mammals derived more direct benefits than participants in any other nature-related activity with \$18.8. Daily averages for recrea-

tional fishing and outdoor activities in natural areas were next with \$9.5 and \$7.6 respectively.

Because natural areas and wildlife are renewable resources managed by the current generation in trust, management activities should strive to maintain the annual direct benefits of \$2.6 million nature-related activities provide to residents of the Yukon in perpetuity.

TABLE 25

ECONOMIC VALUE OF NATURE RELATED ACTIVITIES FOR THE YUKON IN 1996

Nature-related activities	Average value per participant (\$)	
	Yearly	Daily
Outdoor activities in natural areas	178.5	7.6
Wildlife viewing	119.7	7.1
Recreational fishing <sup>a</sup>	108.2*	9.5*
Hunting		
Large mammals		
Small mammals		
Waterfowl		
Other birds		
All hunting	211.3	20.8

Notes:

<sup>a</sup> Averages for wildlife viewing, fishing and hunting are for main activities only.

<sup>\*</sup> Averages for all hunting may seem high because many participants hunt more than one type of wildlife during the season.

\* See note on the statistical reliability of survey results in Section 1.8.

## PART B

### NATURE-RELATED ACTIVITIES BY CANADIANS AND U.S. VISITORS IN CANADA

#### 17. THE FLOW OF FISH- AND WILDLIFE-RELATED EXPENDITURES BETWEEN CANADA AND THE UNITED STATES

In this chapter, the outlays of Canadians who traveled to the United States for two nature-related activities — wildlife viewing and recreational fishing — are compared with those of U.S. residents who visited Canada for these activities. Results from the Nature Survey show that while the vast majority of expenditures by Canadians on viewing and fishing were spent within the borders of Canada, a small amount (\$236.1 million in Canadian dollars) was spent by Canadians who traveled to the United States to participate in these activities.<sup>20</sup> A comparable

survey conducted by the U.S. Census Bureau, which asked U.S. residents about their involvement in fish- and wildlife-related activities, was used to determine the expenditures made in Canada for wildlife viewing and fishing. That survey revealed that about 1.1 million U.S. visitors spent \$705.3 million (in Canadian dollars) in Canada; including \$383.1 million on fishing, and \$322.2 million on viewing.<sup>21</sup>

A comparison of the results from the two surveys reveals that U.S. visitors in Canada spent considerably more money on fish- and wildlife-related activities than did Canadians visiting the United States for this purpose.

The above comparison of the two surveys reveals U.S. visitors spent three times more money in Canada on fish- and wildlife-related activities than did Canadian visitors in the United States. Hence, a trade surplus with the United States exists in the area of spending on fish- and wildlife-related activities.

<sup>20</sup> For more detailed results, see Part B in the Highlights report for the Nature Survey (reference 11 in Appendix III). Hunting wildlife in the U.S. was not covered in the 1996 Nature Survey since results from the 1991 Wildlife Survey revealed that few Canadians went hunting in the U.S..

<sup>21</sup> See references 16 and 17 in Appendix III for the U.S. survey. For more detailed results, see Part B in the Highlights report for the Nature Survey (reference 11 in Appendix III). Hunting wildlife in Canada was not covered in the 1996 U.S. survey since the 1991 survey revealed that few Americans traveled to Canada to hunt.

## 18. INDIRECT BENEFITS OF PARTICIPATION IN NATURE-RELATED ACTIVITIES BY CANADIANS AND U.S. VISITORS IN CANADA

Canada's natural environment provides opportunities both to Canadians in their own country and visitors from other countries to experience outstanding scenery and wildlife. The expenditures made in association with these experiences result in significant positive economic impacts.

In 1996, Canadians spent nearly \$11.0 billion on nature-related activities in Canada. When combined with the \$705.3 million spent by U.S. visitors reported in Chapter 17, the grand total increases to \$11.7 billion. It should be noted that this total is an underestimate, since it does not include spending by U.S. visitors in Canada for outdoor activities in natural areas, such as sightseeing, camping, boating and hiking.

These expenditures were analyzed using the Statistics Canada National Input-Output Model in accordance with procedures described in Section 4.2. The expenditures and the resulting economic impacts for the \$11.0 billion spent by Canadians were described in Chapter 4.

The \$705.3 million spent in Canada by U.S. visitors on wildlife viewing and recreational fishing, went for accommodation (38.9 percent), food (25.2 percent), transportation (21.5 percent) and other items such as guide and equipment rentals (14.4 percent). These expenditures contributed over \$732 million to the Canadian GDP, while providing \$330 million of revenue from taxes to

all levels of government. Expenditures by these U.S. visitors also supported more than 13,000 jobs across Canada.

Figure 20 shows the economic impacts for the \$11.7 billion spent by Canadians and U.S. visitors in Canada on nature-related activities. The figure shows that:

- expenditures on nature-related activities contributed \$12.1 billion to Canada's GDP
- these expenditures supported a total of 215,000 jobs
- governments received a total of \$5.4 billion in revenue from diverse taxes on goods and services as a result of these expenditures.

Figure 20

### EXPENDITURES BY CANADIANS AND U.S. VISITORS ON NATURE-RELATED ACTIVITIES IN CANADA AND RESULTING ECONOMIC IMPACTS

	Canadians	U.S. visitors	Total
<b>Total expenditures (\$ billion)<sup>1</sup></b>	11.0	0.7	11.7
<b>Outdoor activities in natural areas</b>	7.2	not available	7.2
Wildlife viewing	1.3	0.3	1.6
Recreational fishing	1.9	0.4	2.3
Hunting	0.8	— <sup>2</sup>	0.8
Other nature-related activities	1.2	not applicable	1.2

ECONOMIC IMPACTS:	
► Gross business production	\$17.3 billion
► Gross domestic product	\$12.1 billion
► Government revenue from taxes	\$5.4 billion
► Personal income	\$5.9 billion
► Number of jobs sustained	214,800 persons

<sup>1</sup> The sum of expenditures for the different types of activity is greater than the total expenditures because expenditures for wildlife viewing, recreational fishing, and hunting include both main and secondary expenditures, as described in Section 2.1.

<sup>2</sup> See Appendix 21.



## 18. INDIRECT BENEFITS OF PARTICIPATION IN NATURE-RELATED ACTIVITIES BY CANADIANS AND U.S. VISITORS IN CANADA

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In 1996, Canadians spent nearly \$11.0 billion on nature-related activities in Canada. When combined with the \$705.3 million spent by U.S. visitors reported in Chapter 17, the grand total increases to \$11.7 billion. It should be noted that this total is an underestimate, since it does not include spending by U.S. visitors in Canada for outdoor activities in natural areas, such as sightseeing, camping, boating and hiking.

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The \$705.3 million spent in Canada by U.S. visitors on wildlife viewing and recreational fishing, went for accommodation (38.9 percent), food (25.2 percent), transportation (21.5 percent) and other items such as guide and equipment rentals (14.4 percent). These expenditures contributed over \$732 million to the Canadian GDP, while providing \$330 million of revenue from taxes to

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Figure 20 shows the economic impacts for the \$11.7 billion spent by Canadians and U.S. visitors in Canada on nature-related activities. The figure shows that:

- expenditures on nature-related activities contributed \$12.1 billion to Canada's GDP
- these expenditures supported a total of 215,000 jobs
- governments received a total of \$5.4 billion in revenue from diverse taxes on goods and services as a result of these expenditures.

FIGURE 20

### EXPENDITURES BY CANADIANS AND U.S. VISITORS ON NATURE-RELATED ACTIVITIES IN CANADA AND RESULTING ECONOMIC IMPACTS

	Canadians	U.S. visitors	Total
Total expenditures (\$ billion) <sup>1</sup>	11.0	0.7	11.7
Outdoor activities in natural areas	7.2	not available	7.2
Wildlife viewing	1.3	0.3	1.6
Recreational fishing	1.9	0.4	2.3
Hunting	0.8	— <sup>2</sup>	0.8
Other nature-related activities	1.2	not applicable	1.2



ECONOMIC IMPACTS:	
► Gross business production	\$17.3 billion
► Gross domestic product	\$12.1 billion
► Government revenue from taxes	\$5.4 billion
► Personal income	\$5.9 billion
► Number of jobs sustained	214,800 persons

<sup>1</sup> The sum of expenditures for the different types of activity is greater than the total expenditures because expenditures for wildlife viewing, recreational fishing, and hunting include both main and secondary expenditures, as described in Section 2.1.

<sup>2</sup> See footnote 21.

## PART C

### SIGNIFICANCE OF FINDINGS FOR SUSTAINABLE DEVELOPMENT POLICIES AND PROGRAMS

#### 19. CONCLUSIONS AND POLICY IMPLICATIONS

The results from the Survey on the Importance of Nature to Canadians demonstrate the magnitude of the benefits from nature-related activities to the people and the economy of Canada. In total, Canadians and U.S. visitors to Canada spent \$11.7 billion while participating in nature-related activities. Of this total, \$11.0 billion was spent on nature-related activities by Canadians, whereas \$705.3 million was spent by U.S. visitors on two of these activities, wildlife viewing and recreational fishing. Participants' expenditures resulted in a contribution of \$12.1 billion to Canada's GDP and \$5.4 billion in taxes to government treasuries. Nearly 215,000 jobs were sustained by these expenditures. Over and above their spending on nature-related activities, those Canadians who make intensive recreational use of nature were willing to spend an additional \$2 billion, which represents the economic value placed by participants on these activities.

The Nature Survey constitutes an important source of information on the economic benefits that result from the enjoyment of Canada's natural wealth. The partnership undertaking the survey has made

a unique contribution by bringing together information that crosses traditional management divisions such as wildlife, forests, water and protected areas. Findings such as these are essential inputs in policy review, legislation development, land use planning, allocation decisions, marketing strategies and monitoring processes.

The information on economic benefits revealed by the survey can serve as a tool to influence the decisions of governments at all levels, industry, organizations and individual Canadians to sustain Canada's natural wealth. For example, it can be used to:

- **Develop economic indicators to measure progress toward sustainable development**

Economic indicators of sustainable development are similar to standard economic indicators such as GDP except that they take into account natural resource depletion. They are different from other indicator classes such as ecological in that they are expressed as dollar values, and thus various components can be added up to form a comprehensive story about sustainability. The Nature Survey results in this report contribute toward the development of these indicators by providing

measures of the recreational value resulting from the sustainable use of Canada's natural wealth.

- **Formally acknowledge the important economic contribution of Canada's natural wealth in the national income accounts**

Canada's national income accounts are designed to reflect the performance of the economy. However, natural assets, such as wildlife, forests and water, are not fully reflected as productive inputs in these accounts. This means that their current contributions to the country's economy are not clearly documented, and that any loss or degradation of these assets entails no depreciation of current income to account for the decrease in future production. Progress in correcting this omission is underway in a set of integrated environmental accounts. Identifying the various goods and services provided by natural assets and estimating their economic value are essential in efforts to reform national income accounting practice. Information from the Nature Survey on the values associated with nature-based tourism and recreation are an important contribution to this task.

- **Help demonstrate the significant returns to investments in actions to sustain Canada's biodiversity and ecosystems by providing measures of the economic benefits that may be lost if these assets are degraded**

Canada's natural areas such as forests and lakes, and the wildlife and fish that live in these areas, are renewable resources. Because they are renewable, the benefits derived from them can be enjoyed in perpetuity, provided that programs are aimed at the sustainable management of these resources. The Nature Survey results confirm the magnitude of the benefits generated by the goods and services consumed by participants in nature-related activities. They serve to remind decision-makers of the importance of natural wealth to the well-being of Canadians and their economy.

- **Design and calibrate equitable economic incentives to expedite the funding of programs to sustain Canada's biodiversity and ecosystems**

Findings from the Nature Survey show high levels of expenditures by Canadians whose nature-related

activities depend on intensive direct use of wildlife, fish and natural areas. These findings provide managers with a firmer basis for allocation decisions, as well as an opportunity to develop creative ways of encouraging those who benefit most to contribute to the cost of sustaining Canada's wildlife, fish and natural areas.

- **Recognize the importance of using natural assets sustainably for maintaining the economic benefits to industry resulting from nature-related expenditures**

The Nature Survey shows that considerable sums were spent on equipment used primarily for nature-related activities, such as camping gear, outdoor clothing, boats, trucks and cameras. The survey also shows high levels of spending on trip-related expenditures, in the form of transportation, accommodation and food. As a result of these expenditures, a wide range of industries in the Canadian economy benefit in the form of income and jobs. Many of these

industries are not traditionally associated with natural assets, such as the retail sector. The benefits can be maintained if the natural assets that generate these expenditures are managed sustainably. This is a good illustration of the integration of environment and economic considerations.

- **Improve the effectiveness of public participation processes by providing insights on the economic benefits of sustaining Canada's natural wealth**

The growing importance of the public voice in decision-making has spurred the development of processes such as public consultations that reflect the diversity of views on sustainable development issues. These processes work most effectively if the participants as well as decision-makers are fully informed about the economic benefits to Canadians and their economy that result from the sustainable use of natural wealth. The information on benefits included in this report can make a significant contribution to these processes.

## 20. FUTURE DIRECTIONS

The previous chapter demonstrates that sustainable development can be furthered by establishing and maintaining a comprehensive and defensible database on the economic benefits resulting from natural assets and by using this information to guide policy and program formulation. Some promising future directions for this work are to:

**1. Analyze Nature Survey results according to the subprovincial and ecological regions in which natural assets are managed**

The need for socioeconomic information on nature-related activities in Canada according to regions such as ecozones and drainage basins was addressed in the Nature Survey. Information was gathered on the locations at which nature-related activities took place in such a way that the information could be georeferenced, and then aggregated according to natural regions. The Federal-Provincial-Territorial Task Force overseeing the analysis and reporting of survey results is developing methods and strategies for

spatially analyzing Nature Survey results using Geographic Information Systems (GIS) tools. By combining social and economic data with environmental data, this work is expected to provide valuable insights for a variety of programs and policies relating to biodiversity and ecosystem initiatives.

**2. Examine the role of natural assets in Canada's tourism industry**

Expenditures by tourists who engage in nature-related activities contribute significantly to the Canadian economy. Further analyses of Nature Survey results consistent with standard definitions of tourism as travel involving overnight stays will shed new light on this contribution. Studies of non-residents who visit Canada for a variety of nature-related activities would also enhance our understanding of the importance of natural assets in Canada's tourism industry.

**3. Contribute information on non-timber values of forests**

In recent years, forest policies have been redefined to emphasize the sustainable management of forest

resources for a broad spectrum of economic and social values while protecting biodiversity and ecosystems for future generations. Information on non-timber uses such as nature study, hunting and fishing and the associated economic values from the Nature Survey will contribute to assessing the relative value of these uses of forests.

**4. Update the Survey on the Importance of Nature to Canadians to monitor the sustainable use of Canada's natural wealth**

From the perspective of horizontal resource management, the Nature Survey emerges as a valuable monitoring instrument for joint initiatives among jurisdictions. The results establish that Canada's natural wealth contributes to the well-being of complex, diverse and nationwide constituencies. In light of the substantial contribution of the Nature Survey database to managing for sustainability, plans are underway to update this important socioeconomic tool.

## APPENDIX I. CONCEPTS AND DEFINITIONS

**Direct benefits (economic value)** — the value of the enjoyment received by participants in nature-related activities net of the expenditures associated with these recreational activities (see Fig. 6, C). As little or no information readily exists on the value of these activities, the value was estimated by asking participants about their willingness to pay for nature-related recreation. The resulting dollar amounts reflect nature-related benefits that occur outside the marketplace.

**Economic impacts** — See Indirect benefits.

**Economic value** — See Direct benefits.

**Expenditures** — expenses made by the participant over the 12 month period of 1996 for the purchase of goods and services to be used primarily for participation in nature-related activities. Goods bought for other purposes but used in these activities are not considered to be legitimate costs of nature-related activities. Expenditures are essential in estimating indirect benefits to the economies of Canada, the provinces and the Yukon but cannot be used as a measure of economic value to participants, as illustrated in Boxes C and D of Figure 6.

Expenditures are divided into the following categories:

**Expenditures on maintaining, restoring or purchasing land for conservation:** Costs include the maintenance, restoration or purchase of land to provide food or shelter for fish or wildlife, or to conserve or restore a natural setting. An example would be maintaining or adding to an area certain types of plants for the purpose of feeding or sheltering wildlife. The respondent could not include, for example, his/her cottage.

**Expenditures on residential wildlife-related activities:** Such items as the cost of feeders, feed for wildlife, birdhouses, magazines, films and cameras used primarily for wildlife would be included.

**Expenditures on transportation:** Such items as the cost to operate private vehicles (gas and repairs for autos, private boats, planes, RVs...), vehicle rental (rental and insurance costs for autos, boats, trucks, RVs...), local transportation (including taxis, city buses...), fares for airplanes, boats, trains and buses would be included.

**Expenditures on accommodation:** Such items as the costs of campgrounds, cabins, lodges, hotels, motels and resorts would be included.

**Expenditures on food:** Such items as food and beverages bought at stores and restaurants would be included.

**Expenditures on equipment:** Includes equipment personally purchased by the participant for a given activity in Canada in 1996; for example:

- general outdoor equipment (cameras and accessories, recording equipment, binoculars, bikes, camping gear, special clothing, footwear, luggage, backpacks...)
- skiing (skis, ski boots, ski clothing, other ski equipment...)
- snowmobiling (snowmobiles, snowmobiling clothing, other snowmobiling equipment...)
- hunting (guns and accessories, game carriers, calls, dogs, decoys...)
- fishing (rods, reels, other fishing equipment...)
- boats/motors (boats, canoes, kayaks, sailboats, boat motors...)
- vehicles (trucks, campers, RVs/motorhomes, ATVs...)
- any other equipment.

**Expenditures on other items:**

Includes such items as recreation and entertainment costs (licenses, entry fees, guide fees...), retail purchases (souvenirs, books, magazines, film and photographic services, equipment rental and repairs, batteries...) and special items for hunting (ammunition, dog maintenance) or fishing (bait, tackle, line...).

**Government revenue from taxes —**

The national figure includes all federal, provincial and local taxes, both direct and indirect, net of subsidies, levied on business and personal income earned and various goods and services. The provincial figures include all the direct and indirect taxes, net of subsidies, levied by the provincial and local governments resulting from the economic stimulus generated by nature-related activities. By definition, the national figure is larger than the sum of provincial government revenues.

**Gross business production** — the overall business activity within Canada or the provinces generated by expenditures. It includes the total value of both final and intermediate goods and services produced in the business sector.

**Gross domestic product (GDP)** — the total value, at market prices, of production of final goods and services within Canada or the provinces and the Yukon, resulting from the expenditures on nature-related activities. All duplications such as intermediate expenses are

eliminated. It is one of the most widely used measures of economic performance, along with the conceptually similar economic indicator, gross national product (GNP).

**Indirect benefits** — the economic impacts on the national, provincial or territorial economies resulting from expenditures on nature-related activities in 1996. They are based on input-output analyses by Statistics Canada and are measured in terms of gross business production, gross domestic product, government revenue from taxes, number of jobs sustained and personal income (see Fig. 6, E). Economic impacts for Canada differ from the sum of the provincial impacts for the following reasons: Statistics Canada uses different input-output models for national and provincial statistics, and revenue from taxes in the total for Canada includes both federal and provincial taxes.

**Input-output models** — The latest input-output models developed and maintained by the Input-Output Division of Statistics Canada were employed. The National Input-Output Model was used to analyze the propagation of demand throughout the Canadian economy, which is divided into many sectors. The Interprovincial Input-Output Model complemented the national one by providing a provincial dimension to the industry and commodity accounts. The accounting framework of these models is the most detailed set of input-output accounts for Canada, including approximately 200 industries, 600 commodities and 140 final demand categories.

The models are documented in the User's guide to Statistics Canada structural economic model (see reference 13 in Appendix III).

**Nature-related activity** — a recreational activity that includes, in some form, either direct or indirect contact with nature. Outdoor activity in natural areas, residential wildlife-related activity, wildlife viewing, recreational fishing, hunting and indirect nature-related activity are included in this category.

**Number of jobs** — the number of jobs in various businesses and industries sustained as a result of expenditures on nature-related activities in 1996. This does not necessarily reflect full-time jobs.

**Personal disposable income** — personal income less personal direct taxes and other current transfers from persons to government.

**Personal income** — a component of gross domestic product that represents the sum of all incomes received by persons resident in Canada.

**Total willingness to pay** — (see Fig. 6, B) the total amount of economic value placed on nature-related activities. It is measured by the sum total of expenditures to participate in nature-related activities (see Fig. 6, D) and the willingness to pay over and above these expenditures for the enjoyment provided by nature-related activities (see Fig. 6, C).

## APPENDIX II. COMPARABILITY OF 1996 AND 1991 SURVEYS

The questionnaire for the 1996 Nature Survey included expenditure questions similar in many respects to those used in the 1991 Wildlife Survey which it updated. For example, in the two surveys similar questions were used in the sections on "Trips Taken to Watch, Feed, Photograph or Study Wildlife", "Recreational Fishing", "Hunting Waterfowl, Other Birds, Small Mammals, Large Mammals" and other sections.

However, significant changes were made to the Nature Survey questionnaire to make the survey more representative of nature expenditures. Users comparing results on expenditures from the two surveys should be aware that the differences may be due in part to changes in the questionnaire and not necessarily to actual increases or declines in expenditures in these activities over time. This Appendix describes changes in the questionnaire that should be taken into account when attempting to make comparisons between the two surveys.

Table 26 presents selected results for expenditures in Canada on wildlife-related activities and recreational fishing from the Nature Survey and the Wildlife Survey. Changes made in the Nature Survey and their impact on comparability of expenditure data with the Wildlife Survey include the following:

1. The Nature Survey questionnaire was designed so that respondents would not report the same expenditures in more than one section of the questionnaire. Respondents were asked to report expenditures in a section only when the activity covered was the main reason for their nature-related trips. As a result, the Nature Survey should

provide estimates of expenditures for nature-related activities as a whole that are more representative of nature use than would be the case if the effort to avoid double counting had not been as great.

2. The Nature Survey included expenditure questions in sections on "Trips Taken to Watch, Feed, Photograph or Study Wildlife," "Recreational Fishing," and "Hunting," similar to those in the Wildlife Survey.

TABLE 26

### COMPARISON OF EXPENDITURES ON SELECTED ACTIVITIES, 1991 WILDLIFE SURVEY AND 1996 NATURE SURVEY

**DATA COMPARABILITY:** Results for 1996 in this table are not directly comparable to those for 1991, as a result of significant changes to make the 1996 survey more representative of nature expenditures. See points 1-8 in Appendix II for guidelines on making comparisons between 1991 and 1996 survey results.

1991 WILDLIFE SURVEY (total and mean expenditures in 1991 constant dollars)	1996 NATURE SURVEY (total and mean expenditures in 1996 constant dollars)
Residential wildlife related activities	Residential wildlife related activities
<ul style="list-style-type: none"> <li>• residence and cottage combined \$445.6 million</li> <li>\$31 mean annual expenditures</li> </ul>	<ul style="list-style-type: none"> <li>• residence only \$320.5 million</li> <li>\$35 mean annual expenditures</li> </ul>
Primary non consumptive wildlife related trips in Canada	Wildlife viewing in Canada
<ul style="list-style-type: none"> <li>\$2.3 billion</li> <li>\$613 mean annual expenditures</li> </ul>	<ul style="list-style-type: none"> <li>• main and secondary expenditures combined \$1.3 billion</li> <li>\$340 mean annual expenditures</li> </ul>
	<ul style="list-style-type: none"> <li>• main activity expenditures</li> <li>• secondary activity expenditures</li> </ul>
Recreational fishing in Canada	Recreational fishing in Canada
<ul style="list-style-type: none"> <li>\$2.7 billion</li> <li>\$500 mean annual expenditures</li> </ul>	<ul style="list-style-type: none"> <li>• main and secondary activity expenditures combined \$1.9 billion</li> <li>\$474 mean annual expenditures</li> </ul>
	<ul style="list-style-type: none"> <li>• main activity expenditures</li> <li>• secondary activity expenditures</li> </ul>
Hunting in Canada	Hunting in Canada
<ul style="list-style-type: none"> <li>\$1.2 billion</li> <li>\$767 mean annual expenditures</li> </ul>	<ul style="list-style-type: none"> <li>• main and secondary activity expenditures combined \$823.8 million</li> <li>\$687 mean annual expenditures</li> </ul>
	<ul style="list-style-type: none"> <li>• main activity expenditures</li> <li>• secondary activity expenditures</li> </ul>

<sup>1</sup> Users should apply caution when using secondary expenditure estimates separately since they were derived for the purpose of obtaining total expenditures for wildlife viewing, recreational fishing and hunting.

However, the Nature Survey also included expenditure questions in a new section on "Outdoor Activities in Natural Areas". This section covered trips taken for the main reason of participating in one or more of 17 specified outdoor activities.

A separate question in the new section asked about participation in fish and wildlife-related activities as a **secondary reason** for trips. Due to this change, estimating expenditures for wildlife viewing, recreational fishing and hunting from the Nature Survey is more complex than from the Wildlife Survey. This is because both forms of activity — main and secondary — must now be taken into account. It was reasoned that in the absence of opportunities for and participation in fish- and wildlife-related activities on these trips, it is likely that trip-related expenditures such as transportation, accommodation and food would still have been made. However, it is also likely that some portion would have been spent on equipment and other items specific to viewing, fishing or hunting. Such expenditures would not have been made if the participants had not undertaken these secondary fish and wildlife-related activities.

For the benefit of users of survey results who require estimates of expenditures on wildlife viewing, fishing and hunting that takes both main and secondary activities

into account, the Federal- Provincial-Territorial Task Force that prepared this report defined two forms of expenditures for wildlife viewing, fishing and hunting. The first of these, **main activity expenditures**, are the expenditures that respondents reported when viewing, fishing or hunting was the main reason for their trips. The other, **secondary activity expenditures**, consists of a proportion of the expenditures that respondents reported when their main activity was outdoor activities in natural areas and secondary activity was viewing, fishing or hunting.

The Task Force then developed a method to estimate secondary activity expenditures using survey information on mean daily expenditures for the main activity and days spent on the secondary activity. The secondary activity expenditures were added to the main activity expenditures to arrive at the estimated total expenditures for wildlife viewing, fishing and hunting shown in Table 26. The application of this method provides an estimation of total expenditures for viewing, fishing and hunting considered separately.

**Example of comparisons of expenditures:** Table 26 shows that expenditures on hunting in Canada during 1991 were estimated at \$1.2 billion in the Wildlife Survey. Hunting as a main or secondary activity was not specified in that

survey. In comparison, the table shows that hunting expenditures in Canada were estimated at \$823.8 million during 1996 in the Nature Survey. This figure includes the \$666.4 million reported for hunting as the main activity, and \$157.4 million for hunting as a secondary activity, derived as described above.

3. *Expenditures on Primary Nonconsumptive Wildlife-related Trips* were defined in the Wildlife Survey as expenditures associated with trips for which the primary purpose was to watch, feed, photograph or study wildlife. The question was intended and expected to determine expenditures where the main intention of the activity was wildlife viewing. The Nature Survey differentiated two forms of expenditures associated with trips for watching, feeding, photographing or studying wildlife: *expenditures for wildlife viewing as the main activity on trips and expenditures for wildlife viewing as a secondary activity on trips taken for outdoor activities in natural areas*.
4. The section on "Indirect Activities" in the 1991 Wildlife Survey covered indirect **wildlife-related activities** only (e.g. reading books, magazines or articles on wildlife), whereas in the 1996 Nature Survey it covered indirect **nature-related activities** (e.g. reading books, magazines or articles on nature, wildlife, fish, forests, water, grasslands...)

5. The section in the 1991 Wildlife Survey on "Maintaining, Improving or Purchasing Natural Areas" to provide food or shelter for wildlife was replaced in the 1996 Nature Survey by a section on "Maintaining or Purchasing Land" for any of the following reasons 1) providing food or shelter for fish or wildlife, or 2) conserving or restoring a natural setting.
6. *Residential Wildlife-related Activities* included both those around the residence and cottage in the 1991 survey, whereas only activities around the residence were included in the 1996 survey, in order to facilitate sub-provincial aggregation of these results.
7. *Watching, feeding, photographing or studying wildlife as incidental activities on vacation or business trips ("Incidental Wildlife Encounters")* were covered in the 1991 Wildlife Survey, whereas these activities were not included in the 1996 Nature Survey.
8. The 1991 survey covered four *types of hunting* — waterfowl, other birds, small mammals and large mammals. The 1996 survey covered the four types of hunting as main activities, and hunting as a whole as a secondary activity. Estimates of expenditures for the four types of hunting included in Section 2.4 of this report are for the main activity only. The secondary hunting expenditures presented in that section are not broken down by each type of hunting.

**As a result of the changes described in points 1 through 8 above, users should apply caution in comparing expenditures from the Nature Survey and the Wildlife Survey.**

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## APPENDIX IV. FEDERAL, PROVINCIAL AND TERRITORIAL SURVEY PARTNERS

Mr. K. Ambrock Director Fisheries and Wildlife Services Department of Environmental Protection Edmonton, Alberta	Mr. B. Case Regional Director General Canadian Forest Service Natural Resources Canada Edmonton, Alberta	Mr. S. Meis Director Research Canadian Tourism Commission Ottawa, Ontario
Mr. R. Beecher Director Fish and Wildlife Branch Ministry of Natural Resources Peterborough, Ontario	Mr. D. Dryden Director Wildlife Branch Ministry of Environment, Lands and Parks Victoria, British Columbia	Mr. B. Sabean Director Wildlife Management Department of Natural Resources Kentville, Nova Scotia
Monsieur L. Berthiaume Directeur Direction de la faune et des habitats Ministère de l'Environnement et de la Faune Québec, Québec	Mr. B. Gillespie Director Wildlife Branch Department of Natural Resources Winnipeg, Manitoba	Mr. M. Sheridan Director General Labour and Household Surveys Division Statistics Canada Ottawa, Ontario
Dr. A. Boer Director Fish and Wildlife Branch Department of Natural Resources and Energy Fredericton, New Brunswick	Mr. J. Hancock Director Inland Fish and Wildlife Department of Forest Resources and Agrifoods St. John's, Newfoundland	Mr. D. Sherratt Director Fish and Wildlife Branch Saskatchewan Environment and Resource Management Regina, Saskatchewan
Mr. D. Brackett Director General Canadian Wildlife Service Environment Canada Ottawa, Ontario	Mr. A. Hoole Director Fish and Wildlife Branch Department of Renewable Resources Whitehorse, Yukon	Mr. A. Smith Director Fish and Wildlife Division Department of Technology and Environment Charlottetown, Prince Edward Island
Mr. J. Carette Director General Policy, Planning and International Affairs Canadian Forest Service Natural Resources Canada Ottawa, Ontario	Mr. R. Lapierre Director General Strategies and Plans Parks Canada Canadian Heritage Hull, Quebec	Monsieur B. van Oyen Directeur Direction des affaires institutionnelles Ministère de l'Environnement et de la Faune Québec, Québec
	Mr. S. McClellan Director General Economic and Regulatory Affairs Directorate Environment Canada Ottawa, Ontario	Mr. D. Watton Director Land Use Planning Branch Ministry of Natural Resources Peterborough, Ontario